

Appendix C.4  
 Johnson & Ettlinger Model - Data Entry Screen  
 Inhalation of Volatiles from Groundwater  
 Current Adult Residential Scenario - CT  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Aberjona Auto Parts

ENTER Chemical CAS No. (numbers only, no dashes)	Enter X in appro Chemical	ENTER Vadose zone soil water-filled porosity, $\theta_w^v$ (cm <sup>3</sup> /cm <sup>3</sup> )	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)	ENTER Averaging time for carcinogens, AT <sub>C</sub> (yrs)	ENTER Averaging time for noncarcinogens, AT <sub>NC</sub> (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure time ET (hrs/day)	ENTER Conversion factor CF (hrs/yr)
75354	1,1-Dichloroethylene	0.3	1.0E-06	1	70	7	7	350	16	8760
106467	1,4-Dichlorobenzene	0.3	1.0E-06	1	70	7	7	350	16	8760
71432	Benzene	0.3	1.0E-06	1	70	7	7	350	16	8760
67663	Chloroform	0.3	1.0E-06	1	70	7	7	350	16	8760
156592	cis-1,2-Dichloroethylene	0.3	1.0E-06	1	70	7	7	350	16	8760
127184	Tetrachloroethylene	0.3	1.0E-06	1	70	7	7	350	16	8760
79016	Trichloroethylene	0.3	1.0E-06	1	70	7	7	350	16	8760
75014	Vinyl chloride	0.3	1.0E-06	1	70	7	7	350	16	8760
91203	Naphthalene	0.3	1.0E-06	1	70	7	7	350	16	8760
85018	Phenanthrene	0.3	1.0E-06	1	70	7	7	350	16	8760

d soil dry bulk density ( $\rho_b$ ).

Appendix C.4  
 Johnson & Etlinger Model - Chemical Properties Screen  
 Inhalation of Volatiles from Groundwater  
 Current Adult Residential Scenario - CT  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
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Chemical CAS No.	Chemical	Diffusivity in air, $D_a$ ( $\text{cm}^2/\text{s}$ )	Diffusivity in water, $D_w$ ( $\text{cm}^2/\text{s}$ )	Henry's law constant at reference temperature, H ( $\text{atm}\cdot\text{m}^3/\text{mol}$ )	Henry's law constant reference temperature, $T_R$ ( $^{\circ}\text{C}$ )	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ ( $\text{cal/mol}$ )	Normal boiling point, $T_B$ ( $^{\circ}\text{K}$ )	Critical temperature, $T_C$ ( $^{\circ}\text{K}$ )	Organic carbon partition coefficient, $K_{oc}$ ( $\text{cm}^3/\text{g}$ )	Pure component water solubility, S ( $\text{mg/L}$ )	Unit risk factor, URF ( $\mu\text{g}/\text{m}^3$ ) <sup>-1</sup>	Reference conc., RfC ( $\text{mg}/\text{m}^3$ )
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6,247	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9,271	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7,342	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02
67663	Chloroform	1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	3.98E+01	7.92E+03	2.3E-05	5.0E-02
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A
79016	Trichloroethylene	7.80E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5,250	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	10,373	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1,057	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03

Appendix C.4  
Johnson & Ettinger Model - Calculations Screen  
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		Source- building separation, $L_T$ (cm)	Vadose zone soil air-filled porosity, $\theta_a^V$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Thickness of capillary zone, $L_{cz}$ (cm)	Total porosity in capillary zone, $n_{cz}$ (cm <sup>3</sup> /cm <sup>3</sup> )	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm <sup>3</sup> /cm <sup>3</sup> )	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm <sup>3</sup> /cm <sup>3</sup> )	Floor- wall seam perimeter, Xcrack (cm)	Bldg. ventilation rate, $Q_{building}$ (cm <sup>3</sup> /s)
76354	1,1-Dichloroethylene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
106467	1,4-Dichlorobenzene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
71432	Benzene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
67663	Chloroform	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
156692	cis-1,2-Dichloroethylene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
127184	Tetrachloroethylene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
76016	Trichloroethylene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
75014	Vinyl chloride	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
91203	Naphthalene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04
85018	Phenanthrene	30.48	0.130	0.659	1.62E-08	0.390	6.33E-09	18.75	0.43	0.127	0.303	4.00E+03	2.54E+04

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		Area of enclosed space below grade, $A_g$ ( $\text{cm}^2$ )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{\text{crack}}$ (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, $H_{TS}$ (atm-m <sup>3</sup> /mol)	Henry's law constant at ve. groundwat temperature, $H'_{TS}$ (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s)	Vadose zone effective diffusion coefficient, $D^{eff}_V$ ( $\text{cm}^2/\text{s}$ )	Capillary zone effective diffusion coefficient, $D^{eff}_{cz}$ ( $\text{cm}^2/\text{s}$ )	Total overall effective diffusion coefficient, $D^{eff}_T$ ( $\text{cm}^2/\text{s}$ )	Diffusion path length, $L_d$ (cm)	Convection path length, $L_c$ (cm)	Source vapor conc., $C_{\text{source}}$ ( $\mu\text{g}/\text{m}^3$ )
75354	1,1-Dichloroethylene	1.80E+06	2.22E-04	52.12	6,392	1.47E-02	6.34E-01	1.75E-04	5.47E-04	5.12E-04	5.25E-04	30.48	52.12	7.42E+01
106467	1,4-Dichlorobenzene	1.80E+06	2.22E-04	52.12	11,243	8.89E-04	3.83E-02	1.75E-04	4.38E-04	4.12E-04	4.22E-04	30.48	52.12	1.64E+01
71432	Benzene	1.80E+06	2.22E-04	52.12	8,122	2.69E-03	1.16E-01	1.75E-04	5.42E-04	5.07E-04	5.20E-04	30.48	52.12	8.68E+00
67663	Chloroform	1.80E+06	2.22E-04	52.12	7,554	1.86E-03	8.02E-02	1.75E-04	6.43E-04	6.02E-04	6.17E-04	30.48	52.12	
156592	cis-1,2-Dichloroethylene	1.80E+06	2.22E-04	52.12	7,734	2.04E-03	8.77E-02	1.75E-04	4.59E-04	4.30E-04	4.41E-04	30.48	52.12	7.02E+02
127184	Tetrachloroethylene	1.80E+06	2.22E-04	52.12	9,553	7.83E-03	3.37E-01	1.75E-04	4.39E-04	4.11E-04	4.21E-04	30.48	52.12	1.41E+02
79016	Trichloroethylene	1.80E+06	2.22E-04	52.12	8,557	4.79E-03	2.06E-01	1.75E-04	4.83E-04	4.52E-04	4.64E-04	30.48	52.12	4.43E+03
75014	Vinyl chloride	1.80E+06	2.22E-04	52.12	5,000	1.73E-02	7.46E-01	1.75E-04	6.44E-04	6.02E-04	6.18E-04	30.48	52.12	1.47E+02
91203	Naphthalene	1.80E+06	2.22E-04	52.12	12,913	1.52E-04	6.55E-03	1.75E-04	4.70E-04	4.50E-04	4.57E-04	30.48	52.12	8.86E+00
65018	Phenanthrene	1.80E+06	2.22E-04	52.12	1,479	1.14E-04	4.90E-03	1.75E-04	3.50E-04	3.41E-04	3.44E-04	30.48	52.12	1.03E+01

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		Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{vol}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D^{crack}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent Peclet number, $\exp(Pe^1)$ (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., R/C (mg/m <sup>3</sup> )
76354	1,1-Dichloroethylene	0.10	5.22E+00	5.47E-04	4.00E+02	3.87E+155	1.76E-04	1.31E-02	N/A	2.0E-01
106467	1,4-Dichlorobenzene	0.10	5.22E+00	4.38E-04	4.00E+02	1.36E+184	1.70E-04	2.79E-03	N/A	8.0E-01
71432	Benzene	0.10	5.22E+00	6.42E-04	4.00E+02	1.40E+157	1.76E-04	1.53E-03	7.8E-06	3.0E-02
87663	Chloroform	0.10	5.22E+00	6.43E-04	4.00E+02	2.93E+132	1.80E-04	N/A	2.3E-05	6.0E-02
156592	cis-1,2-Dichloroethylene	0.10	5.22E+00	4.59E-04	4.00E+02	3.62E+185	1.71E-04	1.20E-01	N/A	2.0E-01
127184	Tetrachloroethylene	0.10	5.22E+00	4.39E-04	4.00E+02	9.93E+193	1.70E-04	2.39E-02	5.9E-06	N/A
79016	Trichloroethylene	0.10	5.22E+00	4.63E-04	4.00E+02	1.52E+176	1.73E-04	7.66E-01	1.1E-04	4.0E-02
75014	Vinyl chloride	0.10	5.22E+00	6.44E-04	4.00E+02	1.44E+132	1.80E-04	2.64E-02	8.8E-06	1.0E-01
91203	Naphthalene	0.10	5.22E+00	4.70E-04	4.00E+02	1.34E+181	1.72E-04	1.53E-03	N/A	3.0E-03
85018	Phenanthrene	0.10	5.22E+00	3.50E-04	4.00E+02	3.05E+243	1.64E-04	1.68E-03	N/A	3.0E-03

Appendix C.4  
Johnson & Ettinger Model - Results  
Inhalation of Volatiles from Groundwater  
Current Adult Residential Scenario - CT  
Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
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RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

75354 1,1-Dichloroethylene  
106467 1,4-Dichlorobenzene  
71432 Benzene  
67663 Chloroform  
156592 cis-1,2-Dichloroethylene  
127184 Tetrachloroethylene  
79016 Trichloroethylene  
75014 Vinyl chloride  
91203 Naphthalene  
85018 Phenanthrene

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	NA	NA	2.25E+06	NA
NA	NA	NA	7.38E+04	NA
NA	NA	NA	1.75E+06	NA
NA	NA	NA	7.92E+06	NA
NA	NA	NA	3.50E+06	NA
NA	NA	NA	2.00E+05	NA
NA	NA	NA	1.10E+06	NA
NA	NA	NA	2.78E+06	NA
NA	NA	NA	3.10E+04	NA
NA	NA	NA	1.28E+03	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	4.2E-05
NA	2.2E-06
7.6E-10	3.2E-05
NA	NA
NA	3.8E-04
9.0E-09	NA
5.4E-06	1.2E-02
1.5E-08	1.7E-04
NA	3.3E-04
NA	3.6E-04

	95% UCL Cancer Risk	95% UCL HI
TOTAL:	5E-06	1E-02

☐ = Cancer risk > 1E-05  
or HQ/HI>1E+00

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES ☐ OR ☐

SL-SCREEN  
 Version 2.3.0301

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES ☐ X ☐

ENTER Chemical CAS No. (numbers only, no 000700)	Chemical	Enter initial soil concentration		ENTER Depth below surface to bottom of excavated area, ft. (1.5 or 200 cm)	ENTER Depth below surface to top of contamination, ft. (ft.)	ENTER Average soil temperature, °F (°C)	ENTER Vadose zone SO <sub>2</sub> and NO <sub>2</sub> (used to estimate soil vapor concentration) Note		ENTER User-defined vadose zone soil vapor concentration, % (cm <sup>3</sup> /cm <sup>3</sup> )		ENTER Vadose zone and dry bulk density, g/cc (g/cm <sup>3</sup> )	ENTER Vadose zone and soil moisture, % (unitless)	ENTER Vadose zone and water-filled porosity, % (unitless)	ENTER Vadose zone and organic carbon fraction, f <sub>oc</sub> (unitless)	ENTER Average time for calculation, ATC (hr)	ENTER Average time for noncalculation, ATNC (hr)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure time, ET (hr/day)	ENTER Concentration factor CF (unitless)	ENTER Tissue weight for carcinogens, TW (unitless)	ENTER Tissue weight for noncarcinogens, THQ (unitless)
		ENTER Mean soil conc., mg/kg OR (ppm)	ENTER Depth below surface to bottom of excavated area, ft. (1.5 or 200 cm)																		
9009	Trinitrobenzene, 1,2,4		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14000	Dichlorobenzene, 1,2 (o-d)		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14001	Trinitrobenzene, 1,3,5		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14011	n-Butylbenzene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8100	Naphthalene	2.74E+03	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8009	Isopropylbenzene, 4-		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
13000	Bulkybenzene, sec.		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7407	Chlorobenzene	2.49E+03	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7904	Vinyl chloride	2.81E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7400	Bromobenzene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7000	Ethyl Chloride	8.90E+01	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7004	1,1-Dichloroethane	1.20E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7011	Trichloro-1,2,2-trichloroethane, 1,1,2		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7010	Acetone	3.24E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7000	Carbon Disulfide		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7000	Methyl Acetate		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7900	Methylene chloride	7.27E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
10000	trans-1,2-Dichloroethene	7.75E+01	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
10000	Methyl-Tertiary-Butyl Ether	5.75E+01	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7000	1,1-Dichloroethane	3.56E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14002	cis-1,2-Dichloroethene	1.80E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7000	Butane, 2- (MEK)		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7100	1,1,1-Trichloroethane		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7100	Cyclohexane		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14007	Benzene	2.10E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7004	Trichloroethylene	2.91E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14007	Methyl cyclohexane	4.45E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
10000	Toluene	5.85E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
12714	Tetrachloroethylene	1.47E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14007	Chlorobenzene	3.11E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
10010	Ethylbenzene	1.84E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
12000	Xylenes		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14000	Styrene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
14000	Isopropylbenzene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
7004	1,1,2,2-Tetrachloroethane		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
54171	Dichlorobenzene, 1,3-	1.00E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
10010	1,4-Dichlorobenzene	2.30E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8001	1,2-Dichlorobenzene	8.10E+01	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
13001	1,2,4-Trichlorobenzene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
10007	Benzaldehyde		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8001	Methylnaphthalene, 2-	8.41E+03	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8204	Biphenyl, 1,1'		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
30000	Acenaphthylene	8.00E+02	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8200	Acenaphthene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
12000	Debenzofuran	1.79E+03	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8002	Fluorene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
8004	Phenanthrene	3.89E+04	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
10007	Anthracene		15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
CS-2	CS-2 Aliphatics	9.95E+04	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
CS-10	CS-10 Aliphatics	8.11E+04	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
CS-20	CS-20 Aliphatics	4.31E+06	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
CS-18	CS-18 Aliphatics	8.04E+06	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1
C11-022	C11-022 Aromatics	4.10E+08	15	15	10	LS	1			1.5	0.43	0.3	0.002	70	25	25	250	5	5750	1.0E-06	1

Note:

1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 19, 2003) were used for soil water filled porosity (n<sub>w</sub>), soil organic carbon fraction (f<sub>oc</sub>), soil pore porosity (n<sub>p</sub>), and soil dry bulk density (ρ<sub>b</sub>).

Appendix C.4  
 Johnson & Ellinger Model - Data Entry Screen  
 Inhalation of Volatiles from Soil  
 Future Commercial Scenario - RME  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm·m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>v,b</sub> (cal/mol)	Normal boiling point, T <sub>b</sub> (°K)	Critical temperature, T <sub>c</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., R/C (mg/m <sup>3</sup> )	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	578.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.86E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-08	N/A	L
108807	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	6.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S



Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_a$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, X <sub>crack</sub> (cm)	Initial soil concentration used, C <sub>R</sub> (µg/kg)	Bldg. ventilation rate, Q <sub>air</sub> (cm <sup>3</sup> /s)	Area of enclosed space below grade, A <sub>B</sub> (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, Z <sub>crack</sub> (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H <sub>TS</sub> (atm-m <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, H <sub>TS</sub> (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s)	Vadose zone effective diffusion coefficient, D <sub>v</sub> (cm <sup>2</sup> /s)
99838	Trimethylbenzene, 1,2,4-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	4.30E+06	2.62E+06	9.50E+06	1.30E-04	15	1.55E+03	4.09E-03	2.13E-01	1.75E-04	4.77E-04
540690	Dichloroethylene, 1,2- (total)	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	5.90E+02	2.62E+06	9.50E+06	1.30E-04	15	1.73E+03	3.87E-04	1.67E-02	1.75E-04	3.77E-04
109678	Trimethylbenzene, 1,3,5-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	7.13E+04	2.62E+06	9.50E+06	1.30E-04	15	1.55E+03	6.80E-03	2.93E-01	1.75E-04	3.95E-04
104518	n-Butylbenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	6.83E+03	2.62E+06	9.50E+06	1.30E-04	15	1.53E+03	1.09E-02	4.69E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	2.74E+03	2.62E+06	9.50E+06	1.30E-04	15	1.29E+04	1.62E-04	6.65E-03	1.75E-04	4.70E-04
99878	Isopropyltoluene, 4-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	7.31E+05	2.62E+06	9.50E+06	1.30E-04	15	1.57E+03	7.49E+00	3.22E+02	1.75E-04	4.39E-04
135988	Butylbenzene, sec-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	2.61E+02	2.62E+06	9.50E+06	1.30E-04	15	1.53E+03	1.46E-02	6.27E-01	1.75E-04	4.86E-04
74873	Chloromethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.89E+06	2.62E+06	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.68E-04
75014	Vinyl chloride	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	8.60E+01	2.62E+06	9.50E+06	1.30E-04	15	5.00E+03	1.73E-02	7.48E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.89E+06	2.62E+06	9.50E+06	1.30E-04	15	5.39E+03	3.84E-03	1.85E-01	1.75E-04	4.48E-04
75003	Ethyl Chloride	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	8.60E+01	2.62E+06	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.68E-04
75354	1,1-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.20E+02	2.62E+06	9.50E+06	1.30E-04	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04	6.47E-04
75131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.90E+05	2.62E+06	9.50E+06	1.30E-04	15	1.44E+03	4.55E-01	1.96E+01	1.75E-04	1.75E-04
67841	Acetone	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.24E+02	2.62E+06	9.50E+06	1.30E-04	15	7.56E+03	1.97E-05	8.50E-04	1.75E-04	2.07E-03
75150	Carbon Disulfide	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	8.78E+05	2.62E+06	9.50E+06	1.30E-04	15	6.68E+03	6.98E-03	3.01E-01	1.75E-04	6.34E-04
79209	Methyl Acetate	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	6.00E+07	2.62E+06	9.50E+06	1.30E-04	15	1.50E+03	9.89E-05	4.25E-03	1.75E-04	6.81E-04
75092	Methylene chloride	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	7.27E+02	2.62E+06	9.50E+06	1.30E-04	15	7.03E+03	1.17E-03	5.65E-02	1.75E-04	6.35E-04
159806	trans-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	7.72E+01	2.62E+06	9.50E+06	1.30E-04	15	1.47E+03	8.27E-03	3.54E-01	1.75E-04	4.32E-04
1634044	Methyl-Tertiary-Butyl Ether	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	5.75E+01	2.62E+06	9.50E+06	1.30E-04	15	1.45E+03	5.18E-04	2.22E-02	1.75E-04	6.87E-04
75343	1,1-Dichloroethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.58E+02	2.62E+06	9.50E+06	1.30E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.58E-04
156582	cis-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.80E+02	2.62E+06	9.50E+06	1.30E-04	15	7.79E+03	2.04E-03	6.77E-02	1.75E-04	4.59E-04
78933	Butanone, 2- (MEK)	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	4.63E+07	2.62E+06	9.50E+06	1.30E-04	15	1.49E+03	4.90E-06	2.11E-03	1.75E-04	9.45E-04
71556	1,1,1-Trichloroethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	8.01E+05	2.62E+06	9.50E+06	1.30E-04	15	7.89E+03	8.50E-03	3.89E-01	1.75E-04	4.75E-04
110627	Cyclohexane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.89E+06	2.62E+06	9.50E+06	1.30E-04	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	2.10E+02	2.62E+06	9.50E+06	1.30E-04	15	8.12E+03	2.69E-03	1.16E-01	1.75E-04	5.42E-04
79016	Trichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	2.91E+02	2.62E+06	9.50E+06	1.30E-04	15	8.58E+03	4.79E-03	2.06E-01	1.75E-04	4.83E-04
108872	Methyl cyclohexane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	4.45E+02	2.62E+06	9.50E+06	1.30E-04	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04	5.82E-04
108883	Toluene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	5.85E+02	2.62E+06	9.50E+06	1.30E-04	15	9.15E+03	2.62E-03	1.26E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.47E+02	2.62E+06	9.50E+06	1.30E-04	15	9.55E+03	7.63E-03	3.37E-01	1.75E-04	4.39E-04
108907	Chlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.11E+02	2.62E+06	9.50E+06	1.30E-04	15	9.80E+03	1.54E-03	6.85E-02	1.75E-04	4.55E-04
130614	Ethylbenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.84E+02	2.62E+06	9.50E+06	1.30E-04	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04	4.60E-04
1330207	Xylenes	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.50E+05	2.62E+06	9.50E+06	1.30E-04	15	1.54E+03	5.80E-06	2.52E-04	1.75E-04	3.75E-03
100425	Styrene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	5.44E+05	2.62E+06	9.50E+06	1.30E-04	15	1.05E+04	1.09E-03	4.67E-02	1.75E-04	4.47E-04
99828	Isopropylbenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.06E+06	2.62E+06	9.50E+06	1.30E-04	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04	3.92E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.10E+06	2.62E+06	9.50E+06	1.30E-04	15	1.06E+04	1.94E-04	6.77E-03	1.75E-04	5.85E-04
841731	Dichlorobenzene, 1,3-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.00E+02	2.62E+06	9.50E+06	1.30E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.56E-04
106467	1,4-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	2.50E+02	2.62E+06	9.50E+06	1.30E-04	15	1.12E+04	8.69E-04	3.83E-02	1.75E-04	4.38E-04
85501	1,2-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	5.10E+01	2.62E+06	9.50E+06	1.30E-04	15	1.21E+04	6.51E-07	2.37E-06	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.13E+06	2.62E+06	9.50E+06	1.30E-04	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04	2.25E-04
100527	Benzaldehyde	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.74E+06	2.62E+06	9.50E+06	1.30E-04	15	1.53E+03	2.29E-06	9.84E-04	1.75E-04	1.35E-08
91576	Methylnaphthalene, 2-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	6.41E+03	2.62E+06	9.50E+06	1.30E-04	15	1.51E+03	8.80E-04	3.81E-02	1.75E-04	3.13E-04
82524	Biphenyl, 1,1'-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	8.81E+03	2.62E+06	9.50E+06	1.30E-04	15	1.47E+03	2.69E-04	1.14E-02	1.75E-04	3.15E-04
208968	Acenaphthylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	4.00E+02	2.62E+06	9.50E+06	1.30E-04	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04	3.38E-04
83320	Acenaphthene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	6.09E+04	2.62E+06	9.50E+06	1.30E-04	15	1.81E+04	3.67E-05	1.58E-03	1.75E-04	7.33E-04
132649	Dibenzofuran	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	1.79E+03	2.62E+06	9.50E+06	1.30E-04	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04	1.66E-04
86737	Fluorene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	2.97E+04	2.62E+06	9.50E+06	1.30E-04	15	1.62E+04	2.20E-08	6.45E-07	1.75E-04	8.16E-01
85018	Phenanthrene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	3.64E+04	2.62E+06	9.50E+06	1.30E-04	15	1.48E+03	1.14E-04	4.80E-03	1.75E-04	3.50E-03
120127	Anthracene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	2.57E+03	2.62E+06	9.50E+06	1.30E-04	15	1.84E+04	1.20E-06	5.43E-04	1.75E-04	1.60E-03
C5-C9	C5-C9 Aliphatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	8.80E+04	2.62E+06	9.50E+06	1.30E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.64E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	8.11E+04	2.62E+06	9.50E+06	1.30E-04	15	NA	7.80E-01	3.96E+01	1.75E-04	3.64E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	1.72E+04	4.31E+05	2.62E+06	9.50E+06	1.30E-04	15	NA	3.95E-03	1.70E-01	1.75E-04	3.69E-04
C9-C18	C9-C18 Aliphatics	1	0.130	0.859	1.62E-0													

Chemical CAS No. (no dashes)	Chemical	Diffusion path length, $L_d$ (cm)	Convection path length, $L_c$ (cm)	Soil-water partition coefficient, $K_d$ (cm <sup>3</sup> /g)	Vapor conc., $C_{soil}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{avg}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D_{eff}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent foundation perforation number, $exp(Paf)$ (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{bldg}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
95938	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	N/A	0.10	2.74E+01	4.77E-04	1.23E+03	2.79E+303	1.08E-05	N/A	N/A	8.0E-03
540090	Dichloroethylene, 1,2- (total)	1	15	2.67E-01	N/A	0.10	2.74E+01	3.77E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	#N/A
106678	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	8.0E-03
91301	n-Butylbenzene	1	15	6.02E+00	N/A	0.10	2.74E+01	4.41E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	#N/A
90978	Naphthalene	1	15	4.00E+00	4.27E+03	0.10	2.74E+01	4.70E-04	1.23E+03	9.67E+307	1.08E-05	4.61E-02	N/A	3.0E-03
135088	Isopropyltoluene, 4-	1	15	3.18E+00	N/A	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
90978	Butylbenzene, sec-	1	15	6.22E-01	N/A	0.10	2.74E+01	4.88E-04	1.23E+03	6.47E+287	1.08E-05	N/A	N/A	#N/A
74873	Chloromethane	1	15	2.86E-02	3.24E+06	0.10	2.74E+01	7.88E-04	1.23E+03	1.14E+189	1.08E-05	3.51E+00	N/A	9.0E-02
75014	Vinyl chloride	1	15	3.72E-02	6.48E+05	0.10	2.74E+01	8.44E-04	1.23E+03	5.27E+224	1.08E-05	6.99E+00	8.8E-06	1.0E-01
74838	Bromomethane	1	15	2.86E-02	N/A	0.10	2.74E+01	4.48E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	5.0E-03
75003	Ethyl chloride	1	15	2.86E-02	1.12E+06	0.10	2.74E+01	7.96E-04	1.23E+03	1.14E+189	1.08E-05	1.21E+00	N/A	1.0E+01
75354	1,1-Dichloroethylene	1	15	1.18E-01	2.04E+05	0.10	2.74E+01	5.47E-04	1.23E+03	3.62E+284	1.08E-05	2.21E+00	N/A	2.0E-01
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.50E-01	N/A	0.10	2.74E+01	1.75E-04	1.23E+03	#NUM!	1.07E-05	N/A	N/A	3.0E+01
67841	Acetone	1	15	1.15E-03	1.37E+03	0.10	2.74E+01	2.07E-03	1.23E+03	9.18E+69	1.08E-05	1.48E-02	N/A	N/A
75150	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	2.74E+01	8.34E-04	1.23E+03	1.26E+228	1.08E-05	N/A	N/A	7.0E-01
79206	Methyl Acetate	1	15	6.84E-03	N/A	0.10	2.74E+01	8.81E-04	1.23E+03	1.17E+188	1.08E-05	N/A	N/A	#N/A
75092	Methylene chloride	1	15	2.34E-02	1.80E+05	0.10	2.74E+01	8.35E-04	1.23E+03	8.56E+227	1.08E-05	1.73E+00	4.7E-07	3.0E+00
158805	trans-1,2-Dichloroethylene	1	15	1.05E-01	8.20E+04	0.10	2.74E+01	4.32E-04	1.23E+03	#NUM!	1.08E-05	8.85E-01	N/A	2.0E-01
1634044	Methyl-Tertiary-Butyl Ether	1	15	7.88E-02	4.58E+03	0.10	2.74E+01	8.87E-04	1.23E+03	9.48E+216	1.08E-05	4.98E-02	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	8.32E-02	1.82E+06	0.10	2.74E+01	4.58E-04	1.23E+03	#NUM!	1.08E-05	1.75E+00	N/A	5.0E-01
156502	cis-1,2-Dichloroethylene	1	15	7.10E-02	5.85E+04	0.10	2.74E+01	4.69E-04	1.23E+03	#NUM!	1.08E-05	8.12E-01	N/A	2.0E-01
78603	Butanone, 2- (MEK)	1	15	7.98E-03	N/A	0.10	2.74E+01	9.49E-04	1.23E+03	1.18E+183	1.08E-05	N/A	N/A	N/A
71666	1,1,1-Trichloroethane	1	15	2.20E-01	N/A	0.10	2.74E+01	4.78E-04	1.23E+03	4.38E+304	1.08E-05	N/A	N/A	2.2E+00
110827	Cyclohexane	1	15	3.20E-01	N/A	0.10	2.74E+01	4.85E-04	1.23E+03	3.18E+288	1.08E-05	N/A	N/A	#N/A
71432	Benzene	1	15	1.18E-01	7.47E+04	0.10	2.74E+01	5.42E-04	1.23E+03	1.81E+267	1.08E-05	8.02E-01	7.8E-06	3.0E-02
79010	Trichloroethylene	1	15	3.32E-01	1.09E+06	0.10	2.74E+01	4.83E-04	1.23E+03	3.77E+299	1.08E-05	1.18E+00	1.1E-04	4.0E-02
108672	Methyl cyclohexane	1	15	6.36E-01	3.35E+06	0.10	2.74E+01	5.98E-04	1.23E+03	1.50E+242	1.08E-05	3.82E+01	N/A	3.0E+00
108883	Toluene	1	15	3.64E-01	1.28E+06	0.10	2.74E+01	5.34E-04	1.23E+03	1.10E+271	1.08E-05	1.39E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	9.19E+04	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	9.82E-01	5.9E-06	N/A
108907	Chlorobenzene	1	15	4.38E-01	3.21E+04	0.10	2.74E+01	4.55E-04	1.23E+03	#NUM!	1.08E-05	3.48E-01	N/A	8.0E-02
100414	Ethylbenzene	1	15	7.28E-01	2.88E+04	0.10	2.74E+01	4.60E-04	1.23E+03	#NUM!	1.08E-05	2.90E-01	N/A	1.0E+00
1330207	Xylenes	1	15	4.82E-01	N/A	0.10	2.74E+01	3.76E-03	1.23E+03	4.03E+38	1.09E-05	N/A	N/A	1.0E-01
100423	Styrene	1	15	1.55E+00	N/A	0.10	2.74E+01	4.47E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	#N/A
98826	Isopropylbenzene	1	15	1.88E+01	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
79346	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	2.74E+01	5.65E-04	1.23E+03	1.98E+259	1.08E-05	N/A	N/A	#N/A
541731	Dichlorobenzene, 1,3-	1	15	3.40E-01	3.19E+04	0.10	2.74E+01	2.59E-04	1.23E+03	#NUM!	1.07E-05	3.42E-01	N/A	N/A
109487	1,4-Dichlorobenzene	1	15	1.21E+00	6.96E+03	0.10	2.74E+01	4.38E-04	1.23E+03	#NUM!	1.08E-05	7.19E-02	N/A	8.0E-01
95501	1,2-Dichlorobenzene	1	15	1.07E-01	3.84E+00	0.10	2.74E+01	3.84E-02	1.23E+03	4.74E+03	1.09E-05	4.29E-05	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.58E+00	N/A	0.10	2.74E+01	2.29E-04	1.23E+03	#NUM!	1.07E-05	N/A	N/A	2.0E-01
100827	Benzaldehyde	1	15	6.54E-02	N/A	0.10	2.74E+01	1.35E-03	1.23E+03	2.80E+107	1.08E-05	N/A	N/A	#N/A
91577	Methylnaphthalene, 2-	1	15	1.70E+01	1.20E+04	0.10	2.74E+01	2.13E-04	1.23E+03	#NUM!	1.08E-05	1.29E-01	N/A	3.0E-03
92524	Biphenyl, 1,1'-	1	15	1.25E+01	N/A	0.10	2.74E+01	2.16E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
209968	Acenaphthylene	1	15	9.57E+00	4.31E+02	0.10	2.74E+01	3.38E-04	1.23E+03	#NUM!	1.08E-05	4.64E-03	N/A	3.0E-03
83320	Acenaphthene	1	15	1.42E+01	N/A	0.10	2.74E+01	7.33E-04	1.23E+03	2.13E+187	1.08E-05	N/A	N/A	3.0E-03
132849	Dibenzofuran	1	15	1.83E+01	1.94E+04	0.10	2.74E+01	1.95E-04	1.23E+03	#NUM!	1.07E-05	1.75E-01	N/A	N/A
86737	Fluorene	1	15	1.54E+01	N/A	0.10	2.74E+01	8.18E-01	1.23E+03	1.60E+00	3.24E-06	N/A	N/A	3.0E-03
85018	Phenanthrene	1	15	2.83E+01	8.27E+03	0.10	2.74E+01	3.50E-04	1.23E+03	#NUM!	1.08E-05	8.78E-02	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	2.74E+01	1.90E-03	1.23E+03	5.14E+90	1.08E-05	N/A	N/A	3.0E-03
CS-C8	CS-C8 Aliphatics	1	15	4.53E+00	3.84E+06	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	4.14E+03	N/A	2.0E-01
CB-C12	CB-C12 Aliphatics	1	15	3.00E+02	6.78E+06	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	7.29E+01	N/A	2.0E-01
CB-C10	CB-C10 Aromatics	1	15	3.56E+00	1.95E+07	0.10	2.74E+01	3.89E-04	1.23E+03	#NUM!	1.08E-05	2.10E+02	N/A	5.0E-02
CB-C18	CB-C18 Aliphatics	1	15	1.39E+03	1.69E+08	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	1.70E+03	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	8.23E+08	0.10	2.74E+01	4.27E-04	1.23E+03	#NUM!	1.08E-05	6.72E+01	N/A	5.0E-02

RESULT

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

INCREMENTAL RISK CALCULATIONS:

Chemical CAS No. (numbers only, no dashes)	Chemical	Indoor soil conc., carcinogen (ug/kg)	Indoor soil conc., noncarcinogen (ug/kg)	Risk-based Indoor soil conc., carcinogen (ug/kg)	Soil saturation conc., C <sub>s</sub> (ug/kg)	Final Indoor soil conc., carcinogen (ug/kg)	Incremental risk from inhalation to indoor air, carcinogen (unitless)	Hazard quotient from vapor inhalation to indoor air, noncarcinogen (unitless)
95536	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.38E+05	NA	NA	NA
64090	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.96E+02	NA	NA	NA
106678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.53E+03	NA	NA	NA
91303	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	3.5E-03
96876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
135568	Butylbenzene, sec-	NA	NA	NA	1.19E+08	NA	NA	NA
74873	Chloromethane	NA	NA	NA	1.37E+09	NA	NA	6.8E-03
75014	Vinyl chloride	NA	NA	NA	8.33E+05	NA	5.0E-06	1.6E-02
74830	Bromomethane	NA	NA	NA	3.89E+06	NA	NA	NA
75003	Ethyl Chloride	NA	NA	NA	1.37E+09	NA	NA	2.6E-06
75354	1,1-Dichloroethylene	NA	NA	NA	6.36E+05	NA	NA	2.5E-03
70131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA	NA	NA
67641	Acetone	NA	NA	NA	2.21E+08	NA	NA	NA
75160	Carbon Dioxide	NA	NA	NA	6.78E+05	NA	NA	NA
79209	Methyl Acetate	NA	NA	NA	5.03E+07	NA	NA	NA
75092	Methylene chloride	NA	NA	NA	2.86E+08	NA	6.9E-06	1.3E-04
166906	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+06	NA	NA	1.0E-03
1834044	Methyl Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	3.8E-06
75343	1,1-Dichloroethane	NA	NA	NA	1.96E+06	NA	NA	8.0E-04
156562	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	7.0E-04
78833	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	NA
110627	Cyclohexane	NA	NA	NA	1.85E+07	NA	NA	NA
71432	Benzene	NA	NA	NA	2.74E+05	NA	5.1E-07	6.1E-03
79018	Trichloroethylene	NA	NA	NA	6.95E+05	NA	1.1E-05	6.7E-03
106872	Methyl cyclohexane	NA	NA	NA	2.95E+04	NA	NA	2.8E-03
106883	Toluene	NA	NA	NA	3.02E+05	NA	NA	7.6E-04
127184	Tetrachloroethylene	NA	NA	NA	1.85E+05	NA	4.8E-07	NA
106607	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	1.5E-03
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	9.8E-05
1330207	Xylenes	NA	NA	NA	1.50E+05	NA	NA	NA
100426	Styrene	NA	NA	NA	5.44E+05	NA	NA	NA
96628	Isopropylbenzene	NA	NA	NA	1.55E+06	NA	NA	NA
79345	1,1,2,2-Tetrachloroethane	NA	NA	NA	1.15E+06	NA	NA	NA
541731	Dichlorobenzene, 1,3-	NA	NA	NA	3.82E+04	NA	NA	NA
106467	1,4-Dichlorobenzene	NA	NA	NA	1.08E+05	NA	NA	2.1E-05
95501	1,2-Dichlorobenzene	NA	NA	NA	8.50E+06	NA	NA	NA
130321	1,2,4-Trichlorobenzene	NA	NA	NA	1.12E+06	NA	NA	NA
100527	Benzobicyclohexane	NA	NA	NA	1.74E+06	NA	NA	NA
91578	Methylnaphthalene, 2-	NA	NA	NA	4.24E+05	NA	NA	9.8E-03
82524	Bisphenol A, 1,1'-	NA	NA	NA	8.81E+04	NA	NA	NA
209988	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	3.5E-04
83336	Acenaphthene	NA	NA	NA	8.09E+04	NA	NA	NA
132849	Dibenzofuran	NA	NA	NA	1.85E+06	NA	NA	NA
96737	Fluorene	NA	NA	NA	2.97E+04	NA	NA	NA
86018	Phenanthrene	NA	NA	NA	3.84E+04	NA	NA	5.1E-03
120127	Anthracene	NA	NA	NA	2.37E+03	NA	NA	NA
C8-C9	C8-C9 Aromatics	NA	NA	NA	7.89E+07	NA	NA	4.7E+00
C9-C12	C9-C12 Aromatics	NA	NA	NA	2.12E+07	NA	NA	8.1E-02
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	8.8E-01
C9-C18	C9-C18 Aromatics	NA	NA	NA	1.35E+07	NA	NA	1.8E+00
C11-C22	C11-C22 Aromatics	NA	NA	NA	6.92E+07	NA	NA	3.1E-01

95% UCL  
Cancer  
Risk  
TOTAL: 2E-05  
= Cancer risk > 1E-05  
or HQ/HI > 1E+00

Trimethylbenzene, 1,2,4-  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Dichloroethylene, 1,2- (total)  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Trimethylbenzene, 1,3,5-  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
n-Butylbenzene  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Naphthalene  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Isopropyltoluene, 4-  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Butylbenzene, sec-  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Chloromethane  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Vinyl chloride  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Bromomethane  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Ethyl Chloride  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
1,1-Dichloroethylene  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Trichloro-1,2,2-trifluoroethane, 1,1,2-  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Acetone  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Carbon Dioxide  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Methyl Acetate  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Methylene chloride  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
trans-1,2-Dichloroethylene  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Methyl Tertiary-Butyl Ether  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
1,1-Dichloroethane  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
cis-1,2-Dichloroethylene  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Butanone, 2- (MEK)  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
1,1,1-Trichloroethane  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Cyclohexane  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Benzene  
MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Trichloroethylene

Accordis C.A.  
Johnson & Johnson Model - Data Entry Screen  
Initiation of Volatiles from Soil  
Future Commercial Scenario - CT  
Southwest Properties, Wells O&H Superfund Site, Onondaga Unit 2  
Watershed Basin

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES ☐ OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES ☐ X

SL-SCREEN  
Version 2.3.0301

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	EN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Appendix C.4  
Johnson & Ettinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Commercial Scenario - CT  
Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, $D_a$ ( $\text{cm}^2/\text{s}$ )	Diffusivity in water, $D_w$ ( $\text{cm}^2/\text{s}$ )	Henry's law constant at reference temperature, $H$ ( $\text{atm}\cdot\text{m}^3/\text{mol}$ )	Henry's law constant reference temperature, $T_R$ ( $^\circ\text{C}$ )	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ ( $\text{cal/mol}$ )	Normal boiling point, $T_b$ ( $^\circ\text{K}$ )	Critical temperature, $T_c$ ( $^\circ\text{K}$ )	Organic carbon partition coefficient, $K_{oc}$ ( $\text{cm}^3/\text{g}$ )	Pure component water solubility, $S$ ( $\text{mg/L}$ )	Unit risk factor, URF ( $\mu\text{g}/\text{m}^3$ ) <sup>-1</sup>	Reference conc., RfC ( $\text{mg}/\text{m}^3$ )	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec.	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	689.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74673	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	8.22E-03	25	5.49E+03	278.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.68E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
87641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.38E-03	25	1.33E+03	320.85	516.50	5.25E+01	8.30E+03	N/A	2.0E-01	L
163404	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.65	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
158592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.60	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.86E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108983	Toluene	8.70E-02	8.80E-06	6.03E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
78345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.95E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	8.88E+01	N/A	N/A	L
108467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	488.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	8.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	614.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.58E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_a$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $K_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, X <sub>crack</sub> (cm)	Initial soil concentration used, C <sub>0</sub> (µg/kg)	Bldg. ventilation rate, Q <sub>vent</sub> (cm <sup>3</sup> /s)	Area of enclosed space below grade, A <sub>g</sub> (cm <sup>2</sup> )	Crack- to-total area ratio, r <sub>i</sub> (unitless)	Crack depth below grade, Z <sub>crack</sub> (cm)	Enthalpy of vaporization at ave. soil temperature, ΔH <sub>v</sub> (cal/mol)	Henry's law constant at ave. soil temperature, H <sub>ts</sub> (atm-cm <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, μ <sub>ts</sub> (g/cm-s)	Vadose zone effective diffusion coefficient, D <sub>eff</sub> (cm <sup>2</sup> /s)
96836	Trimethylbenzene, 1,2,4-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	4.38E+05	2.52E+08	9.50E+06	1.30E-04	15	1.56E+03	4.98E-03	2.13E-01	1.75E-04	4.77E-04
540590	Dichloroethylene, 1,2- (total)	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	5.96E+02	2.52E+08	9.50E+06	1.30E-04	15	1.73E+03	3.87E-04	1.67E-02	1.75E-04	3.77E-04
106678	Trimethylbenzene, 1,3,5-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	7.13E+04	2.52E+08	9.50E+06	1.30E-04	15	1.58E+03	6.80E-03	2.93E-01	1.75E-04	3.95E-04
104518	n-Butylbenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	8.03E+03	2.52E+08	9.50E+06	1.30E-04	15	1.53E+03	1.09E-02	4.68E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	2.74E+03	2.52E+08	9.50E+06	1.30E-04	15	1.29E+04	1.62E-04	8.65E-03	1.75E-04	4.70E-04
98876	Isopropyltoluene, 4-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	7.31E+05	2.52E+08	9.50E+06	1.30E-04	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135988	Butylbenzene, sec-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.10E+08	2.52E+08	9.50E+06	1.30E-04	15	1.53E+03	1.46E-02	8.27E-01	1.75E-04	4.66E-04
74673	Chlorobenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	2.40E+02	2.52E+08	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.66E-04
75014	Vinyl chloride	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	2.81E+02	2.52E+08	9.50E+06	1.30E-04	15	5.00E+03	1.73E-02	7.48E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	3.89E+06	2.52E+08	9.50E+06	1.30E-04	15	5.39E+03	3.84E-03	1.66E-01	1.75E-04	4.48E-04
75003	Ethyl Chloride	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	8.80E+01	2.52E+08	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.66E-04
75354	1,1-Dichloroethylene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	6.34E+01	2.52E+08	9.50E+06	1.30E-04	15	6.39E+03	1.47E-02	8.34E-01	1.75E-04	5.47E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	3.96E+05	2.52E+08	9.50E+06	1.30E-04	15	1.44E+03	4.65E-01	1.06E+01	1.75E-04	1.76E-04
67841	Acetone	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	3.24E+02	2.52E+08	9.50E+06	1.30E-04	15	7.98E+03	1.07E-05	8.50E-04	1.75E-04	2.07E-03
75150	Carbon Disulfide	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	6.78E+05	2.52E+08	9.50E+06	1.30E-04	15	6.64E+03	8.99E-03	3.01E-01	1.75E-04	6.34E-04
78208	Methyl Acetate	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	5.03E+07	2.52E+08	9.50E+06	1.30E-04	15	1.50E+03	9.88E-05	4.25E-03	1.75E-04	8.61E-04
75092	Methylene chloride	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	7.27E+02	2.52E+08	9.50E+06	1.30E-04	15	7.03E+03	1.17E-03	6.03E-02	1.75E-04	8.35E-04
158905	trans-1,2-Dichloroethylene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	7.73E+01	2.52E+08	9.50E+06	1.30E-04	15	1.42E+03	8.27E-03	3.68E-01	1.75E-04	4.32E-04
163404	Methyl-Tertiary-Butyl Ether	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	5.75E+01	2.52E+08	9.50E+06	1.30E-04	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04	6.67E-04
75343	1,1-Dichloroethane	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	3.58E+02	2.52E+08	9.50E+06	1.30E-04	15	7.45E+03	2.80E-03	1.24E-01	1.75E-04	4.58E-04
158592	cis-1,2-Dichloroethylene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.80E+02	2.52E+08	9.50E+06	1.30E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.59E-04
78933	Butanone, 2- (MEK)	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	4.83E+07	2.52E+08	9.50E+06	1.30E-04	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04	6.45E-04
71559	1,1,1-Trichloroethane	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	6.01E+05	2.52E+08	9.50E+06	1.30E-04	15	7.88E+03	8.60E-03	3.66E-01	1.75E-04	4.75E-04
110827	Cyclohexane	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	3.88E+05	2.52E+08	9.50E+06	1.30E-04	15	1.49E+03	1.78E+00	7.64E+01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	8.08E+01	2.52E+08	9.50E+06	1.30E-04	15	8.12E+03	2.89E-03	1.16E-01	1.75E-04	6.42E-04
78018	Trichloroethylene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	2.91E+02	2.52E+08	9.50E+06	1.30E-04	15	8.98E+03	4.79E-03	2.06E-01	1.75E-04	4.83E-04
108872	Methyl cyclohexane	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	4.43E+02	2.52E+08	9.50E+06	1.30E-04	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04	5.98E-04
108883	Toluene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	5.83E+02	2.52E+08	9.50E+06	1.30E-04	15	8.65E+03	7.83E-03	3.97E-01	1.75E-04	4.39E-04
127184	Tetrachloroethylene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.47E+02	2.52E+08	9.50E+06	1.30E-04	15	8.65E+03	8.85E-02	8.85E-02	1.75E-04	4.55E-04
106907	Chlorobenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	3.11E+02	2.52E+08	9.50E+06	1.30E-04	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04	4.60E-04
100414	Ethylbenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.84E+02	2.52E+08	9.50E+06	1.30E-04	15	1.54E+03	5.88E-06	2.52E-04	1.75E-04	3.75E-03
1330207	Xylenes	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	5.44E+05	2.52E+08	9.50E+06	1.30E-04	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04	4.47E-04
100425	Styrene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.15E+06	2.52E+08	9.50E+06	1.30E-04	15	1.64E+03	1.28E-02	5.51E-01	1.75E-04	3.66E-04
98828	Isopropylbenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.06E+06	2.52E+08	9.50E+06	1.30E-04	15	1.06E+04	1.34E-04	5.77E-03	1.75E-04	5.65E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.00E+02	2.52E+08	9.50E+06	1.30E-04	15	1.80E+03	4.11E-03	1.77E-01	1.75E-04	2.58E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	2.60E+02	2.52E+08	9.50E+06	1.30E-04	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04	4.38E-04
108487	1,4-Dichlorobenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.00E+02	2.52E+08	9.50E+06	1.30E-04	15	1.21E+04	6.51E-07	2.37E-05	1.75E-04	3.94E-02
95501	1,2-Dichlorobenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	5.10E+01	2.52E+08	9.50E+06	1.30E-04	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04	2.26E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.13E+05	2.52E+08	9.50E+06	1.30E-04	15	1.63E+03	2.29E-05	9.84E-04	1.75E-04	1.35E-03
106227	Benzaldehyde	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.74E+06	2.52E+08	9.50E+06	1.30E-04	15	1.61E+03	8.89E-04	3.81E-02	1.75E-04	3.13E-04
91576	Methylnaphthalene, 2-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	8.81E+03	2.52E+08	9.50E+06	1.30E-04	15	1.47E+03	2.68E-04	1.14E-02	1.75E-04	3.15E-04
92524	Biphenyl, 1,1-	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	4.00E+02	2.52E+08	9.50E+06	1.30E-04	15	1.61E+03	2.45E-04	1.05E-02	1.75E-04	3.38E-04
20895	Acenaphthylene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	8.09E+04	2.52E+08	9.50E+06	1.30E-04	15	1.81E+04	3.67E-05	1.65E-03	1.75E-04	7.33E-04
83328	Acenaphthylene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	1.79E+03	2.52E+08	9.50E+06	1.30E-04	15	1.47E+03	3.61E-03	1.61E-01	1.75E-04	1.89E-04
132649	Fluorene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	2.97E+04	2.52E+08	9.50E+06	1.30E-04	15	1.62E+04	2.20E-04	9.49E-07	1.75E-04	8.15E-01
98737	Phenanthrene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	3.64E+04	2.52E+08	9.50E+06	1.30E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.50E-04
85019	Anthracene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	2.67E+03	2.52E+08	9.50E+06	1.30E-04	15	1.84E+04	1.28E-05	5.43E-04	1.75E-04	1.80E-03
120127	Benzo[a]pyrene	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	8.83E+04	2.52E+08	9.50E+06	1.30E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.84E-04
C5-C8	C5-C8 Aliphatics	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	6.11E+04	2.52E+08	9.50E+06	1.30E-04	15	NA	7.80E-01	3.38E+01	1.75E-04	3.64E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	4.31E+05	2.52E+08	9.50E+06	1.30E-04	15	NA	3.88E-03	1.70E-01	1.75E-04	3.69E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.858	1.62E-08	0.390	6.33E-09	1.72E+04	8.29E+05	2.52E+08	9.50E+06	1.30E-04	15	NA	8.28E-01	3.59E+01	1.75E-04	3.94E-04
C9-C18	C9-C18 Aliphatics	1	0.130	0.858	1.62E-08	0.390												


Appendix C.4  
Johnson & Ettinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Commercial Scenario - CT  
Southwest Properties, Wells G&H Superfund Site, Operable  
Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, $L_d$ (cm)	Convection path length, $L_p$ (cm)	Soil-water partition coefficient, $K_d$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{soil}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{avg}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D_{eff}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent foundation pore number, $exp(Por)$ (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{bldg}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
95838	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	N/A	0.10	2.74E+01	4.77E-04	1.23E+03	2.75E+303	1.08E-05	N/A	N/A	5.0E-03
540590	Dichloroethylene, 1,2- (total)	1	15	2.57E-01	N/A	0.10	2.74E+01	3.77E-04	1.23E+03	#NUM	1.08E-05	N/A	#N/A	#N/A
108678	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM	1.08E-05	N/A	#N/A	5.0E-03
104518	n-Butylbenzene	1	15	5.02E+00	N/A	0.10	2.74E+01	4.41E-04	1.23E+03	#NUM	1.08E-05	N/A	#N/A	#N/A
91203	Naphthalene	1	15	4.00E+00	4.27E+03	0.10	2.74E+01	4.70E-04	1.23E+03	9.87E+307	1.08E-05	4.81E-02	N/A	3.0E-03
98876	Isopropyltoluene, 4-	1	15	3.16E+00	N/A	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM	1.08E-05	N/A	#N/A	4.0E-01
135689	Gulubenzene, iso-	1	15	6.22E+01	N/A	0.10	2.74E+01	4.86E-04	1.23E+03	5.47E+297	1.08E-05	N/A	#N/A	#N/A
74873	Chloroethane	1	15	2.88E-02	3.24E+05	0.10	2.74E+01	7.99E-04	1.23E+03	1.14E+199	1.08E-05	3.51E+00	N/A	5.0E-02
75014	Vinyl chloride	1	15	3.72E-02	6.46E+05	0.10	2.74E+01	6.44E-04	1.23E+03	5.27E+224	1.08E-05	0.99E+00	8.8E-06	1.0E-01
74839	Bromomethane	1	15	2.86E-02	N/A	0.10	2.74E+01	4.48E-04	1.23E+03	#NUM	1.08E-05	N/A	N/A	5.0E-03
75003	Ethyl chloride	1	15	2.88E-02	1.12E+05	0.10	2.74E+01	7.96E-04	1.23E+03	1.14E+189	1.08E-05	1.21E+00	N/A	1.0E-01
76364	1,1-Dichloroethylene	1	15	1.18E-01	1.08E+05	0.10	2.74E+01	5.47E-04	1.23E+03	3.62E+284	1.08E-05	1.17E+00	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.50E-01	N/A	0.10	2.74E+01	1.75E-04	1.23E+03	#NUM	1.07E-05	N/A	N/A	3.0E-01
67841	Acetone	1	15	1.15E-03	1.37E+03	0.10	2.74E+01	2.07E-03	1.23E+03	9.18E+99	1.08E-05	1.48E-02	N/A	N/A
76160	Carbon disulfide	1	15	1.03E-01	N/A	0.10	2.74E+01	6.34E-04	1.23E+03	1.25E+220	1.08E-05	N/A	N/A	7.0E-01
79209	Methyl acetate	1	15	6.64E-03	N/A	0.10	2.74E+01	6.61E-04	1.23E+03	1.17E+168	1.08E-05	N/A	#N/A	#N/A
76062	Methylene chloride	1	15	2.34E-02	1.90E+05	0.10	2.74E+01	6.35E-04	1.23E+03	8.55E+227	1.08E-05	1.73E+00	4.7E-07	3.0E+00
156805	trans-1,2-Dichloroethylene	1	15	1.05E-01	8.20E+04	0.10	2.74E+01	4.32E-04	1.23E+03	#NUM	1.08E-05	8.85E-01	N/A	2.0E-01
183404	Methyl-Tertiary-Butyl Ether	1	15	7.98E-02	4.58E+03	0.10	2.74E+01	6.67E-04	1.23E+03	6.48E+216	1.08E-05	4.96E-02	N/A	3.0E+00
76343	1,1-Dichloroethane	1	15	6.32E-02	1.82E+05	0.10	2.74E+01	4.58E-04	1.23E+03	#NUM	1.08E-05	1.75E+00	N/A	5.0E-01
195692	cis-1,2-Dichloroethylene	1	15	7.10E-02	5.60E+04	0.10	2.74E+01	4.59E-04	1.23E+03	#NUM	1.08E-05	6.12E-01	N/A	2.0E-01
78653	Butane, 2- (MEK)	1	15	7.68E-03	N/A	0.10	2.74E+01	6.45E-04	1.23E+03	1.18E+153	1.08E-05	N/A	N/A	N/A
71566	1,1,1-Trichloroethane	1	15	2.20E-01	N/A	0.10	2.74E+01	4.76E-04	1.23E+03	4.30E+304	1.08E-05	N/A	N/A	2.2E+00
110627	Cyclohexane	1	15	3.20E-01	N/A	0.10	2.74E+01	4.85E-04	1.23E+03	3.16E+298	1.08E-05	N/A	#N/A	#N/A
71432	Benzene	1	15	1.18E-01	2.85E+04	0.10	2.74E+01	5.42E-04	1.23E+03	1.61E+287	1.08E-05	3.08E-01	7.8E-06	3.0E-02
79016	Trichloroethylene	1	15	3.32E-01	1.09E+05	0.10	2.74E+01	4.93E-04	1.23E+03	3.77E+299	1.08E-05	1.18E+00	1.1E-04	4.0E-02
108872	Methyl cyclohexane	1	15	5.36E-01	3.35E+08	0.10	2.74E+01	6.96E-04	1.23E+03	1.60E+242	1.08E-05	3.62E-01	N/A	3.0E+00
108883	Toluene	1	15	3.64E-01	1.28E+05	0.10	2.74E+01	5.34E-04	1.23E+03	1.10E+271	1.08E-05	1.39E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	9.19E+04	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM	1.08E-05	8.92E-01	5.0E-06	N/A
108807	Chlorobenzene	1	15	4.38E-01	3.21E+04	0.10	2.74E+01	4.55E-04	1.23E+03	#NUM	1.08E-05	3.46E-01	N/A	5.0E-02
100414	Ethylbenzene	1	15	7.26E-01	2.65E+04	0.10	2.74E+01	4.60E-04	1.23E+03	#NUM	1.08E-05	2.90E-01	N/A	1.0E+00
1330207	Xylenes	1	15	4.82E-01	N/A	0.10	2.74E+01	3.75E-03	1.23E+03	4.03E+38	1.09E-05	N/A	N/A	1.0E-01
100425	Styrene	1	15	1.55E+00	N/A	0.10	2.74E+01	4.47E-04	1.23E+03	#NUM	1.08E-05	N/A	#N/A	#N/A
98828	Isopropylbenzene	1	15	1.96E+01	N/A	0.10	2.74E+01	3.85E-04	1.23E+03	#NUM	1.08E-05	N/A	N/A	4.0E-01
76345	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	2.74E+01	5.65E-04	1.23E+03	1.95E+255	1.08E-05	N/A	#N/A	#N/A
541731	Dichlorobenzene, 1,3-	1	15	3.40E-01	3.19E+04	0.10	2.74E+01	2.56E-04	1.23E+03	#NUM	1.07E-05	3.42E-01	N/A	N/A
105467	1,4-Dichlorobenzene	1	15	1.23E+00	6.60E+03	0.10	2.74E+01	4.38E-04	1.23E+03	#NUM	1.08E-05	7.19E-02	N/A	5.0E-01
95501	1,2-Dichlorobenzene	1	15	1.07E-01	3.94E+00	0.10	2.74E+01	3.04E-02	1.23E+03	4.74E+03	1.09E-05	4.28E-05	N/A	N/A
120621	1,2,4-Trichlorobenzene	1	15	3.59E+00	N/A	0.10	2.74E+01	2.26E-04	1.23E+03	#NUM	1.07E-05	N/A	N/A	2.0E-01
91576	Methylnaphthalene, 2-	1	15	8.64E-02	N/A	0.10	2.74E+01	1.35E-03	1.23E+03	2.80E+107	1.08E-05	N/A	#N/A	#N/A
92524	Biphenyl, 1,1'	1	15	1.70E+01	1.20E+04	0.10	2.74E+01	3.13E-04	1.23E+03	#NUM	1.08E-05	1.29E-01	N/A	3.0E-03
206968	Acenaphthylene	1	15	1.25E+01	N/A	0.10	2.74E+01	3.12E-04	1.23E+03	#NUM	1.08E-05	N/A	N/A	N/A
83329	Acenaphthene	1	15	9.57E+00	4.31E+02	0.10	2.74E+01	3.38E-04	1.23E+03	#NUM	1.08E-05	4.84E-03	N/A	3.0E-03
132648	Dibenzofuran	1	15	1.42E+01	N/A	0.10	2.74E+01	7.33E-04	1.23E+03	2.13E+197	1.08E-05	N/A	N/A	3.0E-03
66737	Fluorene	1	15	1.63E+01	1.64E+04	0.10	2.74E+01	1.98E-04	1.23E+03	#NUM	1.07E-05	1.75E-01	N/A	N/A
85018	Phenanthrene	1	15	1.54E+01	N/A	0.10	2.74E+01	8.18E-01	1.23E+03	1.50E+00	3.24E-06	N/A	N/A	3.0E-03
120127	Anthracene	1	15	2.63E+01	6.27E+03	0.10	2.74E+01	3.80E-04	1.23E+03	#NUM	1.08E-05	6.75E-02	N/A	3.0E-03
C5-C8	C5-C8 Aliphatics	1	15	6.90E+01	N/A	0.10	2.74E+01	1.60E-03	1.23E+03	5.15E+90	1.08E-05	N/A	N/A	3.0E-03
C9-C12	C9-C12 Aliphatics	1	15	6.90E+01	N/A	0.10	2.74E+01	1.60E-03	1.23E+03	#NUM	1.08E-05	4.14E+03	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	1	15	3.00E+02	6.70E+06	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM	1.08E-05	7.28E+01	N/A	2.0E-01
C9-C18	C9-C18 Aromatics	1	15	3.58E+00	1.95E+07	0.10	2.74E+01	3.89E-04	1.23E+03	#NUM	1.08E-05	2.10E+02	N/A	5.0E-02
C11-C22	C11-C22 Aromatics	1	15	1.38E+03	2.43E+07	0.10	2.74E+01	3.64E-04	1.23E+03	#NUM	1.08E-05	2.61E+02	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	1.40E+06	0.10	2.74E+01	4.27E-04	1.23E+03	#NUM	1.08E-05	1.51E+01	N/A	5.0E-02

Appendix C.4  
Johnson & Ettinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Commercial Scenario - GT  
Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
Whitney Panel

#### INCREMENTAL RISK CALCULATIONS:

	95% UCL Cancer Risk 5E-08	95% UCL HI 5.4E+00
TOTAL:		

 = Cancer risk > 1E-05  
or HQ/HI > 1E+00

[illegible]



YES ☐

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (under 20" in YEE) (see and Initial soil conc. below)

YES ☒

1) Default soil permeation from Table T of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 18, 2005) were used for soil water filled porosity ( $f_w$ ), soil organic carbon fraction ( $f_{oc}$ ), soil total porosity ( $n$ ), and soil dry bulk density ( $\rho_d$ ).

Appendix C.4  
 Johnson & Ettinger Model - Data Entry Screen  
 Inhalation of Volatiles from Soil  
 Future Child Recreational Scenario - RME  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm-m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>v,b</sub> (cal/mol)	Normal boiling point, T <sub>b</sub> (°K)	Critical temperature, T <sub>c</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )	Physical state at soil temperature, (S.L.G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	8.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.05E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.86E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	580.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	638.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	781.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_v$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, X <sub>crack</sub> (cm)	Initial soil concentration used, C <sub>R</sub> (ug/kg)	Bldg. ventilation rate, Q <sub>vent</sub> (cm <sup>3</sup> /s)	Area of enclosed space below grade, A <sub>g</sub> (cm <sup>2</sup> )	Crack- to-total area ratio, $\tau$ (unitless)	Crack depth below grade, Z <sub>crack</sub> (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,s}$ (cal/mol)	Henry's law constant at ave. soil temperature, H <sub>ts</sub> (atm-m <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{ts}$ (g/cm-s)	Vadose zone effective diffusion coefficient, D <sub>v</sub> (cm <sup>2</sup> /s)
96996	Trimethylbenzene, 1,2,4-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	4.38E+05	2.62E+06	9.50E+06	1.30E-04	15	1.55E+03	4.86E-03	2.13E-01	1.75E-04	4.77E-04
540690	Dichloroethylene, 1,2- (total)	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	5.99E+02	2.52E+06	9.50E+06	1.30E-04	15	1.73E+03	3.87E-04	1.87E-02	1.75E-04	3.77E-04
108678	Trimethylbenzene, 1,3,5-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	7.13E+04	2.52E+06	9.50E+06	1.30E-04	15	1.56E+03	6.80E-03	2.93E-01	1.75E-04	3.85E-04
104518	n-Butylbenzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	8.83E+03	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.09E-02	4.89E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.74E+03	2.52E+06	9.50E+06	1.30E-04	15	1.29E+04	1.52E-04	8.56E-03	1.75E-04	4.70E-04
96876	Isopropyltoluene, 4-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	7.31E+05	2.52E+06	9.50E+06	1.30E-04	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135688	Butybenzene, sec-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.10E+06	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.48E-02	6.27E-01	1.75E-04	4.86E-04
74873	Chloromethane	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.40E+02	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.99E-04
75014	Vinyl chloride	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.61E+02	2.52E+06	9.50E+06	1.30E-04	15	5.00E+03	1.73E-02	7.46E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.69E+06	2.52E+06	9.50E+06	1.30E-04	15	5.39E+03	3.64E-03	1.65E-01	1.75E-04	4.48E-04
75003	Ethyl chloride	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	8.80E+01	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.99E-04
75384	1,1-Dichloroethylene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.20E+02	2.52E+06	9.50E+06	1.30E-04	15	6.39E+03	1.47E-02	8.34E-01	1.75E-04	5.47E-04
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.98E+05	2.52E+06	9.50E+06	1.30E-04	15	1.44E+03	4.66E-01	1.06E+01	1.75E-04	2.07E-03
67641	Acetone	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.24E+02	2.52E+06	9.50E+06	1.30E-04	15	7.66E+03	1.97E-05	8.50E-04	1.75E-04	3.75E-04
76150	Carbon Disulfide	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	8.78E+05	2.52E+06	9.50E+06	1.30E-04	15	8.88E+03	8.89E-03	3.01E-01	1.75E-04	6.34E-04
75208	Methyl Acetate	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	5.00E+07	2.52E+06	9.50E+06	1.30E-04	15	1.82E+03	8.85E-06	4.25E-03	1.75E-04	8.81E-04
75032	Methylene chloride	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	7.27E+02	2.52E+06	9.50E+06	1.30E-04	15	7.03E+03	1.17E-02	5.03E-02	1.75E-04	8.35E-04
155906	trans-1,2-Dichloroethylene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	7.73E+01	2.52E+06	9.50E+06	1.30E-04	15	1.42E+03	8.72E-03	3.58E-01	1.75E-04	4.32E-04
1634044	Methyl-Tert-butyl Ether	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	6.75E+01	2.52E+06	9.50E+06	1.30E-04	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04	6.87E-04
75343	1,1-Dichloroethane	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.58E+02	2.52E+06	9.50E+06	1.30E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.59E-04
155582	cis-1,2-Dichloroethylene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.80E+02	2.52E+06	9.50E+06	1.30E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.59E-04
78833	Butanone, 2- (MEK)	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	4.83E+07	2.52E+06	9.50E+06	1.30E-04	15	1.49E+03	4.80E-06	2.11E-03	1.75E-04	9.45E-04
71856	1,1,1-Trichloroethane	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	6.01E+06	2.52E+06	9.50E+06	1.30E-04	15	7.88E+03	8.50E-03	3.68E-01	1.75E-04	4.76E-04
110827	Cyclohexane	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.88E+05	2.52E+06	9.50E+06	1.30E-04	15	1.49E+03	1.75E+00	7.54E-01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.10E+02	2.52E+06	9.50E+06	1.30E-04	15	8.12E+03	2.69E-03	1.16E-01	1.75E-04	5.42E-04
79016	Trichloroethylene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.81E+02	2.52E+06	9.50E+06	1.30E-04	15	8.56E+03	4.79E-03	2.08E-01	1.75E-04	4.83E-04
106872	Methyl cyclohexane	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	4.45E+02	2.52E+06	9.50E+06	1.30E-04	15	1.61E+03	3.70E-01	1.59E+01	1.75E-04	5.98E-04
106883	Toluene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	5.85E+02	2.52E+06	9.50E+06	1.30E-04	15	9.15E+03	2.62E-03	1.26E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.47E+02	2.52E+06	9.50E+06	1.30E-04	15	9.66E+03	7.83E-03	3.37E-01	1.75E-04	4.39E-04
106907	Chlorobenzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.11E+02	2.52E+06	9.50E+06	1.30E-04	15	9.90E+03	1.54E-03	8.85E-02	1.75E-04	4.65E-04
100414	Ethylbenzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.84E+02	2.52E+06	9.50E+06	1.30E-04	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04	4.60E-04
1330207	Xylenes	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.60E+05	2.52E+06	9.50E+06	1.30E-04	15	1.54E+03	5.85E-08	2.62E-04	1.75E-04	3.75E-03
100426	Styrene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.44E+05	2.52E+06	9.50E+06	1.30E-04	15	1.06E+04	1.09E-02	4.97E-02	1.75E-04	4.47E-04
96826	Isopropylbenzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.08E+06	2.52E+06	9.50E+06	1.30E-04	15	1.64E+03	1.28E-02	5.51E-01	1.75E-04	3.95E-04
78346	1,1,2,2-Tetrachloroethane	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.18E+06	2.52E+06	9.50E+06	1.30E-04	15	1.05E+04	1.34E-04	6.77E-03	1.75E-04	6.85E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.00E+02	2.52E+06	9.50E+06	1.30E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.66E-04
106467	1,4-Dichlorobenzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.50E+02	2.52E+06	9.50E+06	1.30E-04	15	1.12E+04	8.69E-04	3.83E-02	1.75E-04	4.38E-04
96501	1,2-Dichlorobenzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	5.19E+01	2.52E+06	9.50E+06	1.30E-04	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.13E+06	2.52E+06	9.50E+06	1.30E-04	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04	2.25E-04
100527	Benzaldehyde	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.74E+06	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	2.29E-06	9.84E-04	1.75E-04	1.35E-03
91576	Methylnaphthalene, 2-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	5.41E+03	2.52E+06	9.50E+06	1.30E-04	15	1.61E+03	8.89E-04	3.81E-02	1.75E-04	3.19E-04
92524	Biphenyl, 1,1'-	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	6.81E+04	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	2.09E-04	1.14E-02	1.75E-04	3.15E-04
208968	Acenaphthylene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	4.00E+02	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	2.45E-04	1.06E-02	1.75E-04	3.38E-04
83326	Acenaphthene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	8.09E+04	2.52E+06	9.50E+06	1.30E-04	15	1.61E+04	3.67E-05	1.50E-03	1.75E-04	7.33E-04
132646	Dibenzofuran	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	1.79E+03	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04	1.98E-04
86737	Fluorene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.97E+04	2.52E+06	9.50E+06	1.30E-04	15	1.62E+04	2.23E-08	9.48E-07	1.75E-04	8.16E-01
85018	Phenanthrene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	3.84E+04	2.52E+06	9.50E+06	1.30E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.52E-04
120127	Anthracene	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	2.57E+03	2.52E+06	9.50E+06	1.30E-04	15	1.84E+04	1.28E-06	5.43E-04	1.75E-04	1.82E-03
CS-08	CS-08 Aliphatics	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	9.83E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.64E-04
CS-C12	CS-C12 Aliphatics	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	6.11E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	7.93E-01	3.96E+01	1.75E-04	3.64E-04
CS-C10	CS-C10 Aliphatics	1	0.130	0.859	1.82E-08	0.390	8.33E-09	1.72E+04	4.31E+06	2.52E+06	9.50E+06	1.30E-04	15	NA	3.98E-03	1.70E-01	1.75E-04	3.69E-04
CS-C18	CS-C18 Aliphatics	1	0.130	0.859	1.82E-08													

Appendix C.4  
Johnson & Ettinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Child Recreational Scenario - RME  
Southwest Properties, Wells G&H Superfund Site, Operable  
Wetley Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, $L_p$ (cm)	Convection path length, $L_p$ (cm)	Soil-water partition coefficient, $K_p$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{soil}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{avg}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D_{crack}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent foundation Paclet number, $exp(Pac)$ (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{bldg}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference RfC (mg/m <sup>3</sup> )
96638	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	N/A	0.10	2.74E+01	4.77E-04	1.23E+03	2.76E+303	1.08E-05	N/A	N/A	6.0E-03
540690	Dichloroethylene, 1,2, (total)	1	15	2.57E-01	N/A	0.10	2.74E+01	3.77E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
106678	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	6.0E-03
104518	n-Butylbenzene	1	15	6.02E+00	N/A	0.10	2.74E+01	4.41E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
91203	Naphthalene	1	15	4.00E+00	4.27E+03	0.10	2.74E+01	4.70E-04	1.23E+03	9.67E+307	1.08E-05	4.61E-02	N/A	3.0E-03
135068	Isopropyltoluene, 4-	1	15	3.18E+00	N/A	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
74473	Chloromethane	1	15	6.22E-01	N/A	0.10	2.74E+01	4.86E-04	1.23E+03	5.47E+297	1.08E-05	N/A	N/A	N/A
75014	Vinyl chloride	1	15	2.99E-02	3.24E+05	0.10	2.74E+01	7.66E-04	1.23E+03	1.14E+189	1.08E-05	3.51E+00	N/A	9.0E-02
74339	Bromomethane	1	15	2.99E-02	N/A	0.10	2.74E+01	6.44E-04	1.23E+03	6.27E+224	1.08E-05	8.99E+00	8.8E-08	1.0E-01
75003	Ethyl Chloride	1	15	2.99E-02	1.12E+05	0.10	2.74E+01	7.66E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	5.0E-03
75354	1,1-Dichloroethylene	1	15	1.15E-01	2.04E+05	0.10	2.74E+01	7.66E-04	1.23E+03	1.14E+189	1.08E-05	1.21E+00	N/A	1.0E+01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.80E-01	N/A	0.10	2.74E+01	5.47E-04	1.23E+03	3.62E+284	1.08E-05	2.21E+00	N/A	2.0E-01
87841	Acetone	1	15	1.15E-03	1.37E+03	0.10	2.74E+01	2.07E-03	1.23E+03	9.18E+69	1.08E-05	1.48E-02	N/A	N/A
76160	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	2.74E+01	8.34E-04	1.23E+03	1.25E+228	1.08E-05	N/A	N/A	7.0E-01
79209	Methyl Acetate	1	15	6.84E-03	N/A	0.10	2.74E+01	6.61E-04	1.23E+03	1.17E+188	1.08E-05	N/A	N/A	N/A
75092	Methylene chloride	1	15	2.34E-02	1.80E+05	0.10	2.74E+01	6.35E-04	1.23E+03	8.55E+227	1.08E-05	1.73E+00	4.7E-07	3.0E+00
156606	trans-1,2-Dichloroethylene	1	15	1.05E-01	8.20E+04	0.10	2.74E+01	4.32E-04	1.23E+03	#NUM!	1.08E-05	8.55E-01	N/A	2.0E-01
1834044	Methyl-Tertiary-Butyl Ether	1	15	7.68E-02	4.68E+03	0.10	2.74E+01	6.67E-04	1.23E+03	9.48E+216	1.08E-05	4.96E-02	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.02E+05	0.10	2.74E+01	4.68E-04	1.23E+03	#NUM!	1.08E-05	1.75E+00	N/A	5.0E-01
166592	cis-1,2-Dichloroethylene	1	15	7.10E-02	5.68E+04	0.10	2.74E+01	4.68E-04	1.23E+03	#NUM!	1.08E-05	6.12E-01	N/A	2.0E-01
75033	Butane, 2- (MEK)	1	15	7.88E-03	N/A	0.10	2.74E+01	9.45E-04	1.23E+03	1.18E+153	1.08E-05	N/A	N/A	N/A
71569	1,1,1-Trichloroethane	1	15	2.20E-01	N/A	0.10	2.74E+01	4.75E-04	1.23E+03	4.20E+304	1.08E-05	N/A	N/A	2.2E+00
110427	Cyclohexane	1	15	3.20E-01	N/A	0.10	2.74E+01	4.85E-04	1.23E+03	3.16E+298	1.08E-05	N/A	N/A	N/A
71432	Benzene	1	15	1.18E-01	7.41E+04	0.10	2.74E+01	6.42E-04	1.23E+03	1.61E+267	1.08E-05	8.02E-01	7.8E-08	3.0E-02
79016	Trichloroethylene	1	15	3.32E-01	1.06E+05	0.10	2.74E+01	4.83E-04	1.23E+03	3.77E+299	1.08E-05	1.18E+00	1.1E-04	4.0E-02
106872	Methyl cyclohexane	1	15	6.38E-01	3.38E+08	0.10	2.74E+01	5.98E-04	1.23E+03	1.60E+242	1.08E-05	3.62E-01	N/A	3.0E+00
106863	Toluene	1	15	3.84E-01	1.28E+05	0.10	2.74E+01	5.34E-04	1.23E+03	1.10E+271	1.08E-05	1.39E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	9.19E+04	0.10	2.74E+01	4.29E-04	1.23E+03	#NUM!	1.08E-05	3.42E-01	N/A	5.0E-06
106907	Chlorobenzene	1	15	4.38E-01	3.21E+04	0.10	2.74E+01	4.55E-04	1.23E+03	#NUM!	1.08E-05	3.46E-01	N/A	1.0E+00
100414	Ethylbenzene	1	15	7.26E-01	2.88E+04	0.10	2.74E+01	4.80E-04	1.23E+03	#NUM!	1.08E-05	2.90E-01	N/A	1.0E-01
1330207	Xylenes	1	15	4.82E-01	N/A	0.10	2.74E+01	3.75E-03	1.23E+03	4.03E+38	1.08E-05	N/A	N/A	N/A
100426	Styrene	1	15	1.55E+00	N/A	0.10	2.74E+01	4.47E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
98428	Isopropylbenzene	1	15	1.66E+01	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
79345	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	2.74E+01	6.65E-04	1.23E+03	1.68E+258	1.08E-05	N/A	N/A	N/A
541731	Dichlorobenzene, 1,3-	1	15	3.40E-01	3.19E+04	0.10	2.74E+01	2.66E-04	1.23E+03	#NUM!	1.07E-05	3.42E-01	N/A	N/A
106467	1,4-Dichlorobenzene	1	15	1.23E+00	6.66E+03	0.10	2.74E+01	4.38E-04	1.23E+03	#NUM!	1.08E-05	7.19E-02	N/A	8.0E-01
95501	1,2-Dichlorobenzene	1	15	1.07E-01	3.84E+00	0.10	2.74E+01	3.64E-02	1.23E+03	4.74E+03	1.08E-05	4.28E-05	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.66E+00	N/A	0.10	2.74E+01	2.25E-04	1.23E+03	#NUM!	1.07E-05	N/A	N/A	2.0E-01
106527	Benzaldehyde	1	15	8.64E-02	N/A	0.10	2.74E+01	1.35E-03	1.23E+03	2.60E+107	1.08E-05	N/A	N/A	N/A
91676	Methylisobutylbenzene, 2-	1	15	1.70E+01	1.20E+04	0.10	2.74E+01	3.13E-04	1.23E+03	#NUM!	1.08E-05	1.29E-01	N/A	3.0E-03
92624	Biphenyl, 1,1'-	1	15	1.23E+01	N/A	0.10	2.74E+01	3.15E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
200989	Acenaphthylene	1	15	9.57E+00	4.31E+02	0.10	2.74E+01	7.33E-04	1.23E+03	#NUM!	1.08E-05	4.64E-03	N/A	3.0E-03
83329	Acenaphthene	1	15	1.42E+01	N/A	0.10	2.74E+01	1.66E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
132649	Dibenzofuran	1	15	1.83E+01	1.64E+04	0.10	2.74E+01	8.18E-01	1.23E+03	2.13E+197	1.08E-05	N/A	N/A	3.0E-03
96737	Fluorene	1	15	1.54E+01	N/A	0.10	2.74E+01	1.66E-04	1.23E+03	#NUM!	1.07E-05	1.78E-01	N/A	N/A
95018	Phenanthrene	1	15	2.63E+01	6.27E+03	0.10	2.74E+01	3.50E-04	1.23E+03	1.50E+00	3.24E-05	N/A	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	2.74E+01	1.80E-03	1.23E+03	5.14E+90	1.08E-05	6.78E-02	N/A	3.0E-03
C5-C8	C5-C8 Aliphatics	1	15	4.53E+00	3.84E+08	0.10	2.74E+01	3.64E-04	1.23E+03	#NUM!	1.08E-05	4.14E-03	N/A	2.0E-01
C9-C12	C9-C12 Aliphatics	1	15	3.00E+02	6.78E+08	0.10	2.74E+01	3.64E-04	1.23E+03	#NUM!	1.08E-05	7.28E-01	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	1	15	3.96E+00	1.95E+07	0.10	2.74E+01	3.69E-04	1.23E+03	#NUM!	1.08E-05	2.10E-02	N/A	5.0E-02
C9-C18	C9-C18 Aliphatics	1	15	1.38E+03	1.58E+08	0.10	2.74E+01	3.64E-04	1.23E+03	#NUM!	1.08E-05	1.70E-03	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	6.23E+08	0.10	2.74E+01	4.27E-04	1.23E+03	#NUM!	1.08E-05	6.72E-01	N/A	5.0E-02

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

INCREMENTAL RISK CALCULATIONS:

Chemical CAS No. (numbers only, no dashes)	Chemical	Indoor exposure soil conc. carcinogen (µg/kg)	Indoor exposure soil conc. noncarcinogen (µg/kg)	Risk-based Indoor exposure soil conc. (µg/kg)	Soil saturation conc. C <sub>sat</sub> (µg/kg)	Final Indoor exposure soil conc. (µg/kg)	Incremental risk from vapor inhalation to indoor air, carcinogen (unitless)	Hazard quotient from vapor inhalation to indoor air, noncarcinogen (unitless)
95506	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.38E+05	NA	NA	NA
540500	Dichloroethene, 1,2- (total)	NA	NA	NA	5.95E+02	NA	NA	NA
106678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	3.4E-04
96876	Isopropylbenzene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
135608	Butylbenzene, sec-	NA	NA	NA	1.49E+05	NA	NA	NA
74873	Chloromethane	NA	NA	NA	1.37E+05	NA	NA	8.7E-04
76014	Vinyl chloride	NA	NA	NA	8.33E+05	NA	1.2E-07	1.6E-03
74839	Bromomethane	NA	NA	NA	3.69E+09	NA	NA	NA
75003	Ethyl Chloride	NA	NA	NA	1.37E+06	NA	NA	2.7E-06
71354	1,1-Dichloroethene	NA	NA	NA	8.39E+08	NA	NA	2.5E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.90E+05	NA	NA	NA
67541	Acetone	NA	NA	NA	2.01E+08	NA	NA	NA
73150	Carbon Disulfide	NA	NA	NA	8.78E+05	NA	NA	NA
79208	Methyl Acetate	NA	NA	NA	5.03E+07	NA	NA	NA
75022	Methylene chloride	NA	NA	NA	2.85E+06	NA	1.8E-09	1.3E-05
186605	trans-1,2-Dichloroethene	NA	NA	NA	4.12E+09	NA	NA	9.8E-05
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.47E+07	NA	NA	3.7E-07
75343	1,1-Dichloroethane	NA	NA	NA	1.38E+06	NA	NA	7.8E-05
156062	cis-1,2-Dichloroethene	NA	NA	NA	9.75E+05	NA	NA	6.8E-05
78633	Butane, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71598	1,1,1-Trichloroethane	NA	NA	NA	4.12E+09	NA	NA	NA
110827	Cyclohexane	NA	NA	NA	3.06E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	1.2E-08	5.9E-04
76016	Trichloroethylene	NA	NA	NA	6.35E+05	NA	2.5E-07	6.6E-04
104872	Methyl cyclohexane	NA	NA	NA	2.85E+04	NA	NA	2.7E-04
108863	Toluene	NA	NA	NA	3.02E+05	NA	NA	7.7E-05
127184	Tetrachloroethylene	NA	NA	NA	1.08E+09	NA	1.1E-28	NA
108807	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	1.3E-04
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	6.5E-06
1330207	Xylene	NA	NA	NA	1.50E+05	NA	NA	NA
100425	Styrene	NA	NA	NA	6.44E+05	NA	NA	NA
95528	Isopropylbenzene	NA	NA	NA	1.05E+05	NA	NA	NA
79345	1,1,2,2-Tetrachloroethane	NA	NA	NA	1.15E+09	NA	NA	NA
541731	Dichlorobenzene, 1,3-	NA	NA	NA	3.82E+04	NA	NA	NA
106467	1,4-Dichlorobenzene	NA	NA	NA	1.08E+05	NA	NA	2.0E-06
95501	1,2-Dichlorobenzene	NA	NA	NA	6.51E+06	NA	NA	NA
120821	1,2,4-Trichlorobenzene	NA	NA	NA	1.13E+08	NA	NA	NA
100527	Benzaldehyde	NA	NA	NA	1.74E+09	NA	NA	NA
91878	Methylnaphthalene, 2-	NA	NA	NA	4.24E+05	NA	NA	6.6E-04
92524	Stilbene, 1,1'-	NA	NA	NA	2.91E+04	NA	NA	NA
205958	Acenaphthylene	NA	NA	NA	6.09E+04	NA	NA	3.4E-05
85329	Acenaphthene	NA	NA	NA	6.09E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.55E+05	NA	NA	NA
96737	Fluorene	NA	NA	NA	2.97E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.64E+04	NA	NA	5.0E-04
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.89E+07	NA	NA	4.8E-01
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	3.1E-03
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.62E+06	NA	NA	9.3E-02
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.35E+07	NA	NA	1.9E-01
C11-C22	C11-C22 Aromatics	NA	NA	NA	9.92E+07	NA	NA	3.0E-02

95% UCL  
Cancer  
Risk  
4E-07  
55% UCL  
HI  
7.9E-01  
TOTAL:  
= Cancer risk > 1E-05  
or HQ/Hi > 1E+00

Trimethylbenzene, 1,2,4-  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Dichloroethene, 1,2- (total)  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Trimethylbenzene, 1,3,5-  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
n-Butylbenzene  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Naphthalene  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Isopropylbenzene, 4-  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Butylbenzene, sec-  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Chloromethane  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Vinyl chloride  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Bromomethane  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Ethyl Chloride  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
1,1-Dichloroethene  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Trichloro-1,2,2-trifluoroethane, 1,1,2-  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Acetone  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Carbon Disulfide  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Methyl Acetate  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Methylene chloride  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
trans-1,2-Dichloroethene  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Methyl-Tertiary-Butyl Ether  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
1,1-Dichloroethane  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
cis-1,2-Dichloroethene  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Butane, 2- (MEK)  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
1,1,1-Trichloroethane  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Cyclohexane  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Benzene  
MESSAGE: Soil conc. = saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
Trichloroethylene

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

SL-SCREEN  
Version 2.3.0301

YES ☐

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES ☐

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Chemical CAS No. (numbers only, no dashes)	Enter initial soil concentration, Mean soil conc. OR CR (ug/kg)	Enter Depth below grade to bottom of isolated soil zone L <sub>1</sub> (ft or 100 cm)	Enter Depth below grade to top of contamination L <sub>2</sub> (ft)	Enter Average soil temperature, T <sub>a</sub> (°C)	Enter Vapor zone SCS and flow used to estimate soil vapor permeability, P <sub>soil</sub> (cm <sup>2</sup> /s)	OR	Enter Vapor zone dry bulk density, ρ <sub>b</sub> (g/cm <sup>3</sup> )	Enter Vapor zone soil dry bulk density, ρ <sub>b</sub> (g/cm <sup>3</sup> )	Enter Vapor zone soil water-filled porosity, θ <sub>w</sub> (cm <sup>3</sup> /cm <sup>3</sup> )	Enter Vapor zone soil organic carbon fraction, f <sub>oc</sub> (g/g)	Enter Air/soil exchange rate for carcinogens, ATC (1/hr)	Enter Air/soil exchange rate for noncarcinogens, ATNC (1/hr)	Enter Exposure duration, ED (hr/yr)	Enter Exposure frequency, EF (days/yr)	Enter Exposure time, ET (hr/day)	Enter Correction factor CF	Enter Target hazard quotient for carcinogens, THQ (unitless)	Enter Target hazard quotient for noncarcinogens, THQ (unitless)
10004	Trimethylbenzene, 1,2,4-	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
10005	Dichloromethylene, 1,2- (total)	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
10006	Trimethylbenzene, 1,3,5-	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
10007	n-Butylbenzene	2.74E+03	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
10008	Isopropylbenzene, 4-	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
10009	Butylbenzene, sec-	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74073	Chloromethylene	2.44E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74014	Vinyl chloride	2.01E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74028	Bromomethylene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74029	Styrl Chloride	8.60E+01	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
73084	1,1-Dichloroethylene	8.34E+01	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74111	Trichloro-2,2-bis(4-chlorophenyl)-1,1,2-	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
67461	Acetone	3.24E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
75136	Carbon Dioxide	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74000	Methyl Acetate	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74001	Methylene chloride	7.27E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100044	trans-1,2-Dichloroethylene	7.73E+01	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100444	Methyl-Tertiary-Butyl Ether	2.75E+01	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74041	1,1-Dichloroethane	3.58E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100445	cis-1,2-Dichloroethylene	1.80E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
78053	Butanone, 2- (MEK)	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74015	1,1,1-Trichloroethane	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
110007	Cyclohexane	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
71402	Benzene	8.08E+01	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74016	Trichloroethylene	2.81E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100472	Methyl cyclohexane	4.49E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100405	Toluene	2.80E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
127118	Tetrachloroethylene	1.47E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100007	Chlorobenzene	2.11E+03	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100014	Ethylbenzene	1.84E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100014	Xylene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100023	Styrene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100028	Isopropylbenzene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
74016	1,1,2,2-Tetrachloroethane	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100021	Dichlorobenzene, 1,3-	1.00E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100007	1,2-Dichlorobenzene	2.80E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100008	1,3-Dichlorobenzene	5.10E+01	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100009	1,4-Trichlorobenzene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100027	Benzaldehyde	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
11127	Methylnaphthalene, 2-	5.41E+03	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
30004	Biphenyl, 1,1'-	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
30005	Acenaphthylene	4.00E+02	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100000	Acenaphthene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100000	Dibenzofuran	1.79E+03	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100076	Fluorene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100077	Phenanthrene	3.88E+04	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
100078	Anthracene	15	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
05-013	CS-05 Alphaicals	6.63E+04	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
05-019	CS-012 Alphaicals	4.17E+04	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
05-016	CS-010 Alphaicals	3.51E+04	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
05-017	CS-018 Alphaicals	9.23E+06	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1
013-070	C11-5122 Alphaicals	9.24E+06	15	15	1.5	1.5	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8750	1.0E-06	1

Appendix C.4  
Johnson & Ettinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Child Recreational Scenario - CT  
Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm·m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>v,b</sub> (cal/mol)	Normal boiling point, T <sub>b</sub> (°K)	Critical temperature, T <sub>c</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., R <sub>IC</sub> (mg/m <sup>3</sup> )	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.60E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.07E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.28E-01	6.50E-06	8.87E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	269.25	432.00	1.86E+01	2.78E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.87E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	578.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.68E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.86E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	6.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.08E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.60E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.88E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.28E+03	417.40	618.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120621	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	8.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.87E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.83E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.90E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Appendix C.4  
Johnson & Ettinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Child Recreational Scenario - CT  
Southwest Pyrites, Wells GSH Superfund Site, Operable Unit 2  
Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_a$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone intrinsic permeability, $k$ (cm <sup>2</sup> )	Vadose zone relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, X <sub>crack</sub> (cm)	Initial soil concentration used, CR (µg/kg)	Bldg. ventilation rate, $Q_{vent}$ (cm <sup>3</sup> /s)	Area of enclosed space below grade, $A_g$ (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{crack}$ (cm)	Enthalpy of vaporization at soil temperature, $\Delta H_{v,s}$ (cal/mol)	Henry's law constant at soil temperature, $H_{sc}$ (atm-m <sup>3</sup> /mol)	Henry's law constant at air temperature, HTS (unitless)	Vapor viscosity at air temperature, $\mu_a$ (g/cm-s)	Vadose zone effective diffusion coefficient, $D_{eff}$ (cm <sup>2</sup> /s)
95836	Trimeethylbenzene, 1,2,4-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	4.38E+05	2.52E+06	9.50E+06	1.30E-04	15	1.55E+03	4.06E-03	2.13E-01	1.75E-04	4.77E-04
540590	Dichloroethylene, 1,2- (cis)	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	5.96E+02	2.52E+06	9.50E+06	1.30E-04	15	1.73E+03	3.87E-04	1.67E-02	1.75E-04	3.77E-04
106576	Trimeethylbenzene, 1,3,5-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	7.13E+04	2.52E+06	9.50E+06	1.30E-04	15	1.55E+03	6.80E-03	2.93E-01	1.75E-04	3.96E-04
104518	n-Butylbenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	6.63E+03	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.09E-02	4.66E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	2.74E+03	2.52E+06	9.50E+06	1.30E-04	15	1.28E+04	1.52E-04	6.55E-03	1.75E-04	4.70E-04
99876	Isopropyltoluene, 4-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	7.11E+06	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.46E-02	6.27E-01	1.75E-04	4.39E-04
135888	Butylbenzene, sec-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.10E+06	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.66E-04
74873	Chloromethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	2.48E+02	2.52E+06	9.50E+06	1.30E-04	15	5.00E+03	7.75E-02	7.46E-01	1.75E-04	6.44E-04
75014	Vinyl chloride	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	2.61E+02	2.52E+06	9.50E+06	1.30E-04	15	5.00E+03	7.75E-02	7.46E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	3.69E+06	2.52E+06	9.50E+06	1.30E-04	15	5.39E+03	3.84E-03	1.05E-01	1.75E-04	4.48E-04
75003	Ethyl Chloride	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	8.60E+01	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.75E-02	3.35E-01	1.75E-04	7.66E-04
75354	1,1-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	8.34E+01	2.52E+06	9.50E+06	1.30E-04	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04	5.47E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	3.99E+06	2.52E+06	9.50E+06	1.30E-04	15	1.44E+03	4.56E-01	1.95E-01	1.75E-04	1.75E-04
67641	Acetone	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	3.24E+02	2.52E+06	9.50E+06	1.30E-04	15	7.56E+03	1.97E-05	8.50E-04	1.75E-04	2.07E-03
76200	Carbon Disulfide	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	8.78E+05	2.52E+06	9.50E+06	1.30E-04	15	6.88E+03	6.89E-03	3.01E-01	1.75E-04	6.34E-04
75092	Methyl Acetate	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	6.03E+07	2.52E+06	9.50E+06	1.30E-04	15	1.50E+03	9.88E-05	4.25E-03	1.75E-04	8.61E-04
156806	trans-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	7.27E+02	2.52E+06	9.50E+06	1.30E-04	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04	6.35E-04
1634044	Methyl-Tertiary-Butyl Ether	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	7.73E+01	2.52E+06	9.50E+06	1.30E-04	15	1.42E+03	8.27E-03	3.56E-01	1.75E-04	4.32E-04
75343	1,1-Dichloroethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	5.75E+01	2.52E+06	9.50E+06	1.30E-04	15	1.45E+03	6.16E-04	2.22E-02	1.75E-04	6.67E-04
156582	cis-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	3.68E+02	2.52E+06	9.50E+06	1.30E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.58E-04
78933	Butanone, 2- (MEK)	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	4.83E+07	2.52E+06	9.50E+06	1.30E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.59E-04
71556	1,1,1-Trichloroethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	6.01E+05	2.52E+06	9.50E+06	1.30E-04	15	1.49E+03	4.90E-06	2.11E-03	1.75E-04	9.45E-04
110827	Cyclohexane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	3.88E+06	2.52E+06	9.50E+06	1.30E-04	15	1.46E+03	8.50E-03	3.86E-01	1.75E-04	4.76E-04
71432	Benzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	8.08E+01	2.52E+06	9.50E+06	1.30E-04	15	8.12E+03	2.69E-03	1.16E-01	1.75E-04	2.42E-04
79016	Trichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	2.91E+02	2.52E+06	9.50E+06	1.30E-04	15	8.58E+03	4.79E-03	2.06E-01	1.75E-04	4.43E-04
108872	Methyl cyclohexane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	4.45E+02	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	3.70E-01	1.68E-01	1.75E-04	5.98E-04
108843	Toluene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	5.85E+02	2.52E+06	9.50E+06	1.30E-04	15	9.15E+03	2.82E-03	1.26E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.47E+02	2.52E+06	9.50E+06	1.30E-04	15	9.55E+03	7.83E-03	3.37E-01	1.75E-04	4.39E-04
105907	Chlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	3.11E+02	2.52E+06	9.50E+06	1.30E-04	15	8.80E+03	1.54E-03	6.85E-02	1.75E-04	4.56E-04
100414	Ethylbenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.84E+02	2.52E+06	9.50E+06	1.30E-04	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04	4.60E-04
1330207	Xylenes	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.60E+06	2.52E+06	9.50E+06	1.30E-04	15	1.64E+03	5.88E-06	2.52E-04	1.75E-04	3.75E-03
100425	Styrene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	5.44E+05	2.52E+06	9.50E+06	1.30E-04	15	1.06E+04	1.08E-03	4.67E-02	1.75E-04	4.47E-04
98826	Isopropylbenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.08E+06	2.52E+06	9.50E+06	1.30E-04	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04	3.95E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.15E+06	2.52E+06	9.50E+06	1.30E-04	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04	5.65E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.00E+02	2.52E+06	9.50E+06	1.30E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.56E-04
106467	1,4-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	2.50E+02	2.52E+06	9.50E+06	1.30E-04	15	1.12E+04	8.69E-04	3.83E-02	1.75E-04	4.38E-04
96501	1,2-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	6.10E+01	2.52E+06	9.50E+06	1.30E-04	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.13E+06	2.52E+06	9.50E+06	1.30E-04	15	1.32E+04	4.35E-04	1.67E-02	1.75E-04	2.26E-04
100527	Benzaldehyde	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.74E+06	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	2.29E-06	6.94E-04	1.75E-04	1.35E-03
91578	Methylnaphthalene, 2-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.74E+06	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	8.85E-04	3.81E-02	1.75E-04	3.15E-04
92524	Biphenyl, 1,1'-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	5.41E+03	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	2.68E-04	1.14E-02	1.75E-04	3.15E-04
208988	Acenaphthylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	4.00E+02	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04	3.39E-04
83329	Acenaphthene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	6.09E+04	2.52E+06	9.50E+06	1.30E-04	15	1.81E+04	3.87E-05	1.58E-03	1.75E-04	3.33E-04
132649	Quinoline	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	1.79E+03	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	3.61E-03	1.51E-01	1.75E-04	1.69E-04
86737	Fluorene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	2.97E+04	2.52E+06	9.50E+06	1.30E-04	15	1.62E+04	2.20E-06	9.48E-07	1.75E-04	8.18E-01
85816	Phenanthrene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	3.64E+04	2.52E+06	9.50E+06	1.30E-04	15	1.48E+03	1.14E-04	4.80E-03	1.75E-04	3.50E-04
126127	Anthracene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	2.57E+03	2.52E+06	9.50E+06	1.30E-04	15	1.84E+04	1.26E-05	5.43E-04	1.75E-04	1.60E-03
06-06	CB-C6 Aliphatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	9.83E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.64E-04
CB-C12	CB-C12 Aliphatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	8.11E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	7.60E-01	3.96E+01	1.75E-04	3.64E-04
CB-C10	CB-C10 Aromatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	4.31E+05	2.52E+06	9.50E+06	1.30E-04	15	NA	3.96E-03	1.70E-01	1.75E-04	3.69E-04
CB-C16	CB-C16 Aliphatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+04	9.25E+05	2.52E+06	9.50E+06	1.30E-04	15	NA	8.28E-01	3.66E+01	1.75E-04	3.64E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	1.72E+0										



Appendix C.4  
Johnson & Ellinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Child Recreational Scenario - CT  
Southwest Properties, Wells G&H Superfund Site, Operable  
Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, $L_d$ (cm)	Convection path length, $L_p$ (cm)	Soil-water partition coefficient, $K_d$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{soil}$ (ug/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{air}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D_{crack}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent fugacity number, exp(Pe)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg conc., $C_{bldg}$ (ug/m <sup>3</sup> )	Unit risk factor, URF (ug/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
95638	Trimethylbenzene, 1,2,4-	1	15	7.43E+03	N/A	0.10	2.74E+01	4.77E-04	1.23E+03	2.75E+303	1.08E-05	N/A	N/A	5.0E-03
540690	Dichloroethylene, 1,2, (cis)	1	15	2.57E-01	N/A	0.10	2.74E+01	3.77E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
108678	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	N/A	0.10	2.74E+01	3.66E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	6.0E-03
104518	n-Butylbenzene	1	15	5.02E+00	N/A	0.10	2.74E+01	4.41E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
91203	Naphthalene	1	15	4.00E+00	4.27E+03	0.10	2.74E+01	4.70E-04	1.23E+03	8.87E+307	1.08E-05	4.61E-02	N/A	3.0E-03
96876	Isopropyltoluene, 4-	1	15	3.18E+00	N/A	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
135988	Buthylbenzene, sec-	1	15	6.23E+01	N/A	0.10	2.74E+01	4.66E-04	1.23E+03	5.47E+207	1.08E-05	N/A	N/A	N/A
74873	Chloromethane	1	15	2.86E-02	3.24E+06	0.10	2.74E+01	7.68E-04	1.23E+03	1.14E+180	1.08E-05	3.61E+00	N/A	8.0E-02
75014	Vinyl chloride	1	15	3.72E-02	6.48E+06	0.10	2.74E+01	8.44E-04	1.23E+03	5.27E+224	1.08E-05	6.09E+00	8.6E-08	1.0E-01
74839	Bromomethane	1	15	2.86E-02	N/A	0.10	2.74E+01	4.48E-04	1.23E+03	#NUM!	1.06E-06	N/A	N/A	5.0E-03
75003	Ethyl Chloride	1	15	2.86E-02	1.12E+06	0.10	2.74E+01	7.66E-04	1.23E+03	1.14E+180	1.08E-05	1.21E+00	N/A	1.0E+01
75354	1,1-Dichloroethylene	1	15	1.18E-01	1.08E+05	0.10	2.74E+01	5.47E-04	1.23E+03	3.82E+294	1.08E-05	1.17E+00	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.60E-01	N/A	0.10	2.74E+01	1.75E-04	1.23E+03	#NUM!	1.07E-05	N/A	N/A	3.0E+01
67641	Acetone	1	15	1.15E-03	1.37E+03	0.10	2.74E+01	2.07E-03	1.23E+03	9.18E+60	1.09E-05	1.48E-02	N/A	N/A
75150	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	2.74E+01	6.34E-04	1.23E+03	1.25E+220	1.08E-05	N/A	N/A	7.0E-01
78209	Methyl Acetate	1	15	6.84E-03	N/A	0.10	2.74E+01	6.81E-04	1.23E+03	1.17E+168	1.08E-05	N/A	N/A	N/A
75092	Methylene chloride	1	15	2.34E-02	1.60E+05	0.10	2.74E+01	6.35E-04	1.23E+03	8.65E+227	1.08E-05	1.73E+00	4.7E-07	3.0E+00
159605	trans-1,2-Dichloroethylene	1	15	1.05E-01	8.20E+04	0.10	2.74E+01	4.32E-04	1.23E+03	#NUM!	1.08E-05	8.66E-01	N/A	2.0E-01
1634044	Methyl-Tertiary-Butyl Ether	1	15	7.88E-02	4.68E+03	0.10	2.74E+01	5.87E-04	1.23E+03	9.48E+216	1.08E-05	4.96E-02	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.82E+05	0.10	2.74E+01	4.68E-04	1.23E+03	#NUM!	1.08E-05	1.75E+00	N/A	5.0E-01
159592	cis-1,2-Dichloroethylene	1	15	7.10E-02	5.88E+04	0.10	2.74E+01	4.69E-04	1.23E+03	#NUM!	1.08E-05	6.12E-01	N/A	2.0E-01
78933	Butanone, 2- (MEK)	1	15	7.66E-03	N/A	0.10	2.74E+01	8.45E-04	1.23E+03	1.18E+153	1.08E-05	N/A	N/A	N/A
71559	1,1,1-Trichloroethane	1	15	2.20E-01	N/A	0.10	2.74E+01	4.75E-04	1.23E+03	4.36E+304	1.09E-05	N/A	N/A	2.2E+00
71432	Benzene	1	15	3.20E-01	N/A	0.10	2.74E+01	4.85E-04	1.23E+03	3.18E+298	1.08E-05	N/A	N/A	N/A
71432	Benzene	1	15	1.18E-01	2.65E+04	0.10	2.74E+01	5.42E-04	1.23E+03	1.81E+287	1.08E-05	3.08E-01	7.6E-08	3.0E-02
79016	Trichloroethylene	1	15	3.32E-01	1.09E+05	0.10	2.74E+01	4.83E-04	1.23E+03	3.77E+290	1.08E-05	1.18E+00	1.1E-04	4.0E-02
106872	Methyl cyclohexane	1	15	5.36E-01	3.35E+06	0.10	2.74E+01	5.88E-04	1.23E+03	1.60E+242	1.08E-05	3.82E+01	N/A	3.0E+00
106883	Toluene	1	15	3.84E-01	1.28E+05	0.10	2.74E+01	5.34E-04	1.23E+03	1.10E+271	1.08E-05	1.36E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	9.19E+04	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	9.92E-01	5.9E-09	N/A
109807	Chlorobenzene	1	15	4.38E-01	3.21E+04	0.10	2.74E+01	4.55E-04	1.23E+03	#NUM!	1.08E-05	3.48E-01	N/A	8.0E-02
100414	Ethylbenzene	1	15	7.26E-01	2.88E+04	0.10	2.74E+01	4.80E-04	1.23E+03	#NUM!	1.09E-05	2.80E-01	N/A	1.0E+00
1330207	Xylene	1	15	4.82E-01	N/A	0.10	2.74E+01	3.75E-03	1.23E+03	4.03E+30	1.09E-05	N/A	N/A	1.0E-01
100425	Styrene	1	15	1.55E+00	N/A	0.10	2.74E+01	4.47E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
96825	Isopropylbenzene	1	15	1.66E+01	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
79345	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	2.74E+01	6.65E-04	1.23E+03	1.98E+268	1.08E-05	N/A	N/A	N/A
641731	Dichlorobenzene, 1,3-	1	15	3.40E-01	3.19E+04	0.10	2.74E+01	2.66E-04	1.23E+03	#NUM!	1.07E-05	3.42E-01	N/A	N/A
106487	1,4-Dichlorobenzene	1	15	1.23E+00	6.86E+03	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	7.19E-02	N/A	8.0E-01
95601	1,2-Dichlorobenzene	1	15	1.07E-01	3.94E+00	0.10	2.74E+01	3.84E-02	1.23E+03	4.74E+03	1.08E-05	4.28E-05	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.66E+00	N/A	0.10	2.74E+01	2.25E-04	1.23E+03	#NUM!	1.07E-05	N/A	N/A	2.0E-01
100627	Benzaldehyde	1	15	6.34E-02	N/A	0.10	2.74E+01	1.35E-03	1.23E+03	2.60E+107	1.08E-05	N/A	N/A	N/A
91576	Methylnaphthalene, 2-	1	15	1.70E+01	1.20E+04	0.10	2.74E+01	3.13E-04	1.23E+03	#NUM!	1.08E-05	1.29E-01	N/A	3.0E-03
92524	Biphenyl, 1,1'	1	15	1.25E+01	N/A	0.10	2.74E+01	3.15E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
208968	Acenaphthylene	1	15	9.57E+00	4.31E+02	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	4.64E-03	N/A	3.0E-03
83329	Acenaphthene	1	15	1.42E+01	N/A	0.10	2.74E+01	7.33E-04	1.23E+03	2.13E+187	1.08E-05	N/A	N/A	3.0E-03
132649	Dibenzofuran	1	15	1.83E+01	1.84E+04	0.10	2.74E+01	1.86E-04	1.23E+03	#NUM!	1.07E-05	1.75E-01	N/A	N/A
96737	Fluorene	1	15	1.54E+01	N/A	0.10	2.74E+01	8.18E-01	1.23E+03	1.50E+00	3.24E-05	N/A	N/A	3.0E-03
85016	Phenanthrene	1	15	2.83E+01	6.27E+03	0.10	2.74E+01	3.50E-04	1.23E+03	#NUM!	1.08E-05	6.78E-02	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	2.74E+01	1.80E-03	1.23E+03	5.14E+90	1.08E-05	N/A	N/A	3.0E-03
C5-C8	C5-C8 Aliphatics	1	15	4.53E+00	3.84E+08	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	4.14E+03	N/A	2.0E-01
C9-C12	C9-C12 Aliphatics	1	15	3.00E+02	6.76E+06	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	7.20E+01	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	1	15	3.68E+00	1.95E+07	0.10	2.74E+01	3.88E-04	1.23E+03	#NUM!	1.08E-05	2.10E+02	N/A	5.0E-02
C9-C18	C9-C18 Aliphatics	1	15	1.36E+03	2.42E+07	0.10	2.74E+01	3.64E-04	1.23E+03	#NUM!	1.08E-05	2.81E+02	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	1.40E+08	0.10	2.74E+01	4.27E-04	1.23E+03	#NUM!	1.08E-05	1.61E+01	N/A	5.0E-02

Appendix C.4  
Johnson & Eddinger Model - Data Entry Screen  
Initiation of Variables from Soil  
Future Child Recreational Scenario - CT  
Southwest Proxies, Wells G&H Superfund Site, Coverable Unit 2  
Whitney Barrel

### INCREMENTAL RISK CALCULATIONS

	95% UCL Cancer Risk	95% UCL HI
TOTAL:	4E-08	2.0E-01

= Cancer risk > 1E-05  
or HQ/HI > 1E+00

Masoli Whitney Child Recreational CT revised.xls

SL-SCREEN  
Version 2.1: 01/01

YES ☐

OR

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (ENTER "X" IN TEST box and initial soil conc. below)

YES ☒

## Notes

1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 18, 2003) were used for soil water filled porosity ( $n_w$ ), soil organic carbon fraction ( $f_{oc}$ ), soil total porosity ( $n_t$ ), and soil dry bulk density ( $\rho_d$ ).

Appendix C.4  
Johnson & Ettinger Model - Data Entry Screen  
Inhalation of Volatiles from Soil  
Future Adult Recreational Scenario - RME  
Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, $D_a$ (cm <sup>2</sup> /s)	Diffusivity in water, $D_w$ (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, $H$ (atm-m <sup>3</sup> /mol)	Henry's law constant reference temperature, $T_R$ (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{vb}$ (cal/mol)	Normal boiling point, $T_b$ (°K)	Critical temperature, $T_c$ (°K)	Organic carbon partition coefficient, $K_{oc}$ (cm <sup>3</sup> /g)	Pure component water solubility, $S$ (mg/L)	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )	Physical state at soil temperature, (S.L.G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.28E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
76354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.38	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.66E-03	25	7.34E+03	353.24	582.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.86E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	580.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.80E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
88828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	8.88E+01	N/A	N/A	L
108467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_v$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_u$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, Xorack (cm)	Initial soil concentration used, CR (ug/kg)	Bldg. ventilation rate, $Q_{\text{vent}}$ (cm <sup>3</sup> /s)	Area of enclosed space below grade, $A_g$ (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{\text{crack}}$ (cm)	Enthalpy of vaporization & ave. soil temperature, $\Delta H_{\text{vap}}$ (cal/mol)	Henry's law constant at ave. soil temperature, $H_{\text{ps}}$ (atm-m <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{\text{ps}}$ (g/cm-s)	Vadose zone effective diffusion coefficient, $D^*_{\text{v}}$ (cm <sup>2</sup> /s)
95036	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.36E+05	2.52E+06	9.50E+06	1.30E-04	15	1.55E+03	4.99E-03	2.13E-01	1.75E-04	4.77E-04
540590	Dichlorobenzene, 1,2- (ortho)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.98E+02	2.52E+06	9.50E+06	1.30E-04	15	1.73E+03	3.27E-04	1.87E-02	1.75E-04	3.77E-04
108678	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.13E+04	2.52E+06	9.50E+06	1.30E-04	15	1.55E+03	8.80E-03	2.93E-01	1.75E-04	3.95E-04
104519	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.83E+03	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.09E-02	4.69E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.74E+03	2.52E+06	9.50E+06	1.30E-04	15	1.29E+04	1.52E-04	6.65E-03	1.75E-04	4.70E-04
99878	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.31E+06	2.52E+06	9.50E+06	1.30E-04	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135988	Butylbenzene, sec-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.10E+06	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.49E-02	6.27E-01	1.75E-04	4.86E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.49E+02	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.08E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.81E+02	2.52E+06	9.50E+06	1.30E-04	15	5.00E+03	1.73E-02	7.48E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.69E+06	2.52E+06	9.50E+06	1.30E-04	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04	4.48E-04
75003	Ethyl Chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.60E+01	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04	7.08E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.20E+02	2.52E+06	9.50E+06	1.30E-04	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04	5.47E-04
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.90E+05	2.52E+06	9.50E+06	1.30E-04	15	1.44E+03	4.55E-01	1.96E+01	1.75E-04	1.75E-04
67841	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.24E+02	2.52E+06	9.50E+06	1.30E-04	15	7.50E+03	1.97E-05	6.50E-04	1.75E-04	2.01E-03
76160	Carbon Disulfide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.78E+05	2.52E+06	9.50E+06	1.30E-04	15	6.88E+03	8.89E-03	3.91E-01	1.75E-04	6.34E-04
79209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.09E+07	2.52E+06	9.50E+06	1.30E-04	15	1.55E+03	9.88E-05	4.26E-03	1.75E-04	8.61E-04
75092	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.27E+02	2.52E+06	9.50E+06	1.30E-04	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04	6.35E-04
156605	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.73E+01	2.52E+06	9.50E+06	1.30E-04	15	1.43E+03	8.27E-03	3.59E-01	1.75E-04	4.32E-04
1834044	Methyl-Tert-butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.75E+01	2.52E+06	9.50E+06	1.30E-04	15	1.45E+03	5.15E-04	2.22E-02	1.75E-04	6.87E-04
76343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.58E+02	2.52E+06	9.50E+06	1.30E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.58E-04
156592	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.90E+02	2.52E+06	9.50E+06	1.30E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.59E-04
78933	Butanone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.93E+07	2.52E+06	9.50E+06	1.30E-04	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04	9.45E-04
71950	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.01E+06	2.52E+06	9.50E+06	1.30E-04	15	7.88E+03	8.50E-03	3.96E-01	1.75E-04	4.75E-04
110827	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.88E+05	2.52E+06	9.50E+06	1.30E-04	15	1.49E+03	1.75E+00	7.64E-01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.10E+02	2.52E+06	9.50E+06	1.30E-04	15	8.12E+03	2.69E-03	1.16E-01	1.75E-04	5.42E-04
79018	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.81E+02	2.52E+06	9.50E+06	1.30E-04	15	8.56E+03	4.79E-03	2.05E-01	1.75E-04	4.83E-04
106872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.45E+02	2.52E+06	9.50E+06	1.30E-04	15	1.61E+03	3.70E-01	1.59E+01	1.75E-04	5.98E-04
108883	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.85E+02	2.52E+06	9.50E+06	1.30E-04	15	9.15E+03	2.62E-03	1.29E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.47E+02	2.52E+06	9.50E+06	1.30E-04	15	9.55E+03	7.63E-03	3.37E-01	1.75E-04	4.39E-04
108907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.11E+02	2.52E+06	9.50E+06	1.30E-04	15	9.80E+03	1.54E-03	8.85E-02	1.75E-04	4.53E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.84E+02	2.52E+06	9.50E+06	1.30E-04	15	1.02E+04	9.18E-03	1.37E-01	1.75E-04	4.80E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.60E+05	2.52E+06	9.50E+06	1.30E-04	15	1.54E+03	6.90E-06	2.52E-04	1.75E-04	3.75E-03
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.44E+05	2.52E+06	9.50E+06	1.30E-04	15	1.05E+04	1.09E-03	4.67E-02	1.75E-04	4.47E-04
99828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.06E+06	2.52E+06	9.50E+06	1.30E-04	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04	3.95E-04
79348	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.15E+06	2.52E+06	9.50E+06	1.30E-04	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04	5.65E-04
641731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.00E+02	2.52E+06	9.50E+06	1.30E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.58E-04
108487	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.90E+02	2.52E+06	9.50E+06	1.30E-04	15	1.12E+04	8.89E-04	3.93E-02	1.75E-04	4.38E-04
95501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.10E+01	2.52E+06	9.50E+06	1.30E-04	15	1.21E+04	5.61E-07	2.37E-05	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.13E+06	2.52E+06	9.50E+06	1.30E-04	15	1.32E+04	4.35E-04	1.97E-02	1.75E-04	2.25E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.74E+06	2.52E+06	9.50E+06	1.30E-04	15	1.63E+03	2.29E-06	9.84E-04	1.75E-04	1.35E-03
91576	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.41E+03	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	8.85E-04	3.81E-02	1.75E-04	3.13E-04
62524	Biphenyl, 1,1'-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.61E+04	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	2.88E-04	1.14E-02	1.75E-04	3.15E-04
208950	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.00E+02	2.52E+06	9.50E+06	1.30E-04	15	1.61E+03	2.45E-04	1.05E-02	1.75E-04	3.35E-04
83329	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.09E+04	2.52E+06	9.50E+06	1.30E-04	15	1.61E+04	3.67E-05	1.58E-03	1.75E-04	7.35E-04
132849	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.70E+03	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	3.51E-03	1.61E-01	1.75E-04	1.65E-04
86737	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.87E+04	2.52E+06	9.50E+06	1.30E-04	15	1.62E+04	2.20E-08	9.48E-07	1.75E-04	0.16E-01
85018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.94E+04	2.52E+06	9.50E+06	1.30E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.50E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.57E+03	2.52E+06	9.50E+06	1.30E-04	15	1.84E+04	1.26E-06	5.43E-04	1.75E-04	1.80E-03
09-C8	09-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	9.83E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.64E-04
09-C12	09-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.11E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	7.60E-01	3.98E+01	1.75E-04	3.64E-04
09-C10	09-C10 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.91E+06	2.52E+06	9.50E+06	1.30E-04	15	NA	3.98E-03	1.70E-01	1.75E-04	3.69E-04
09-C16	09-C16 Aliphatics	1	0.130	0.659	1.													